CITY OF SUGAR LAND
STORMWATER MANAGEMENT PROGRAM

PREPARED BY:

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EXECUTIVE SUMMARY

In response to the 1987 amendments to the Clean Water Act (CWA), the U.S. Environmental Protection Agency (EPA) initiated a comprehensive, two-phase approach to stormwater quality. On November 15, 1990, the EPA published Phase I of the National Pollutant Discharge Elimination System (NPDES) program requiring permit coverage for stormwater discharges from medium and large municipal separate storm sewer systems (MS4s) with populations of 100,000 or more and several categories of industrial activities, including construction sites that disturb five or more acres of land. Phase I of the NPDES program addresses sources of stormwater runoff with the greatest potential to impact water quality. On December 8, 1999, the EPA published Phase II of the NPDES program requiring that small MS4s with populations less than 100,000 and construction activities disturbing between one and five acres of land obtain permit coverage.

In response to the NPDES permit requirements, the EPA delegated regulatory authority in Texas to the State of Texas, and with the authority of the Texas Water Code and the CWA, the Texas Commission on Environmental Quality (TCEQ) assumed the authority to issue MS4 stormwater permits. As a regulatory entity, the TCEQ developed the Texas Pollutant Discharge Elimination System (TPDES) program, a program patterned after the federal NPDES stormwater program, which now has federal regulatory authority over discharges to waters of the United States.

The national stormwater regulations originally applied only to cities with populations larger than 100,000. However, the NPDES Phase II rule expanded the scope of the stormwater program to include smaller local governments. Sugar Land and other small municipalities with populations less than 100,000 are now regulated as Phase II municipalities under the NPDES and TPDES MS4 permit requirements.

On August 13, 2007, the TCEQ issued TPDES General Permit No. TXR040000 for stormwater discharges from Phase II cities in Texas. In accordance with the permit requirements, Phase II cities are required to obtain permit coverage within 180 days (Feb 11, 2008) of the permit issuance date and will be given five years (August 13, 2012) to fully implement a Stormwater Management Program (SWMP). The City will also be required to submit annual reports to the TCEQ during the permit period.

Although the City of Sugar Land's population continues to grow and may reach over 100,000 people, our classification as a Phase II city will remain the same. The City of Sugar Land, as a small MS4 operator, will be required to reduce the discharge of pollutants to waters of the United States to the "maximum extent practicable" in order to protect water quality. At a minimum, the permit will require a SWMP that addresses the following issues:

- Identify and implement Best Management Practices (BMPs) for six minimum control measures (MCMs);
- Identify measurable goals for the control measures;
- Develop an implementation schedule for the control measures; and
- Define the responsible entity to implement the control measures.

The TPDES permit requires the permittee to select *appropriate* BMPs for each of six MCMs and an optional seventh MCM. In other words, the TCEQ expects Phase II permittees to tailor their stormwater management plans and their BMPs to fit the particular characteristics and needs of the permittee and the area served by its MS4. Therefore, the operator of a regulated storm sewer system can take advantage of the flexibility provided by the permit to utilize the most suitable MCMs for its MS4.

To qualify for permit coverage, the MS4 must develop a SWMP that describes the BMPs they will develop and implement to minimize the discharge of pollutants from the MS4 to the maximum extent practicable. The seven MCMs as defined by the TCEQ are as follows:

- Public Education and Outreach
- Public Involvement and Participation
- Illicit Discharge Detection and Elimination
- Construction Site Stormwater Runoff Control
- Post-construction Stormwater Management in New Development and Redevelopment
- Pollution Prevention/Good Housekeeping for Municipal Operations
- Authorization for Municipal Construction Activities

In order to fulfill permit requirements, several City departments will play a vital role in the implementation of the SWMP, including Public Works, Utilities, Community and Environmental Services, Engineering, Permits & Inspections, Planning, Parks & Recreation, Finance & Administration, Municipal Courts, the City Manager's Office, and Public Communications.

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SECTION 1 – OVERVIEW

1.1 CITY BACKGROUND

1.1.1 City Organization

The City of Sugar Land, located 20 miles southwest of Houston, is a full-service municipality providing the highest quality of services to meet the needs of its citizens. Sugar Land is an economically vibrant and culturally diverse community of approximately 76,000 residents. The 2000 Census figures ranked the City of Sugar Land number one in growth in the Houston metro area and number one among the state's 45 largest cities.

With the incorporation of the City in 1959, a home rule form of government was adopted. A home rule charter allows the City to make a variety of decisions ranging from the establishment of the type of government, the ability to specify the number of members, the allowance of annexation, the ability to set property tax rates, and the authority to authorize any other function, responsibility, or provision provided they are not specifically prohibited by the state constitution or laws. This gives municipalities like Sugar Land broad powers of enforcement and the ability to establish ordinances to regulate the various stormwater program elements.

The home rule charter, as amended, provides for a council-manager government, which includes a mayor and six council members who are elected for a term of two years, with a term limit of four consecutive terms. Under this system, Council appoints the City Manager, who acts as chief executive officer of the government. The Mayor and two council members are elected at-large in even years, and the remaining four council members are elected by single member districts in odd years. The Mayor and City Council establish goals and priorities each fiscal year, while the City Manager implements those objectives established by the governing body. The City Manager carries out policies and administers City programs.

1.1.2 Upper Oyster Creek Watershed

Upper Oyster Creek is located within the San Jacinto-Brazos River Coastal Basin, southwest of Houston within the northern portion of Fort Bend County. Over the years, Upper Oyster Creek has been significantly modified, and it currently serves as a segment of a water conveyance system operated by the Gulf Coast Water Authority (GCWA). Seasonally, water is pumped into Upper Oyster Creek from the Brazos River to provide agricultural and industrial water resources to the region.

In the near future, additional water supplies will be pumped through Oyster Creek from the Brazos River to serve as the primary potable water source for the City of Sugar Land, adding municipal use to the category of uses served. Surface water traveling through the Oyster Creek watershed will supply approximately 60% of the potable water demand for the City and its Groundwater Reduction Plan participants by the year 2025. The City also leases water rights held on Oyster Creek by the Fort Bend County Water Control and Improvement District No. 1 for the future use of non-potable water supply projects for irrigation and lake-filling.

The Upper Oyster Creek watershed occupies approximately 278 square kilometers and lies within a climatic region classified as subtropical humid with hot summers and dry winters. The watershed is quickly becoming urbanized and includes portions of several municipalities including Fulshear, Missouri City, Stafford, and Sugar Land. With the numerous urbanized areas located within the Upper Oyster Creek watershed, the watershed is affected by a variety of sources ranging from municipal and industrial wastewater discharges to stormwater runoff.

In June 2001, the Texas Commission on Environmental Quality (TCEQ) initiated two Total Maximum Daily Load (TMDL) studies on Oyster Creek: a bacteria study and a dissolved oxygen study. The TCEQ has conducted these studies as an element of the TMDL program initiated by the Environmental Protection Agency (EPA). Oyster Creek was selected for this program due to its classification as a historically impaired waterbody and its listing on the Texas 303(d) List for high bacteria levels and low concentrations of dissolved oxygen.

The Upper Oyster Creek Bacteria TMDL was adopted by the TCEQ on August 8, 2007. During the Implementation Phase of the TMDL process, the stakeholders will coordinate with the TCEQ to formulate and implement a plan detailing reasonable best management practices (BMPs) that may help lower bacteria levels in Upper Oyster Creek. As the Implementation Phase progresses, the City will revise the SWMP to reflect TMDL requirements.

In addition, the Upper Oyster Creek Dissolved Oxygen TMDL is nearing completion, and preliminary data suggests that non-point source pollution in Upper Oyster Creek does not appear to affect the dissolved oxygen levels within the creek. Upon completion and adoption of the TMDL study, the stakeholders will coordinate efforts to ensure proper implementation of the TMDL requirements, and the City will revise the SWMP as deemed necessary.

1.1.3 Key Personnel

In order to fulfill permit requirements, several City departments will play a vital role in the implementation of the SWMP, including Public Works, Utilities, Community and Environmental Services, Engineering, Permits & Inspections, Planning, Parks & Recreation, Finance & Administration, Municipal Courts, the City Manager's Office, and Public Communications. These City departments have the ability to perform many of the elements comprising a comprehensive stormwater program; however, full program implementation will require additional departmental personnel and funding resources throughout the course of the permit period.

In addition to departmental resources, the City will also utilize the assistance of third party organizations in order to fully implement the SWMP. Since 1999, the City has held a services contract with Keep Sugar Land Beautiful (KSLB), a non-profit 501(c)(3) organization, to provide services ranging from event organization to educational outreach and development. This partnership plays a key role in the development and implementation of environmental programs throughout the community. Through KSLB's affiliation with Keep Texas Beautiful and Keep America Beautiful, their programs motivate volunteers to improve their neighborhoods and create a healthier, safer, and more livable environment. KSLB will be available throughout the permit period to assist the City with public education and outreach pertaining to the Stormwater Management Program.

1.1.4 City Drainage Operations

The City of Sugar Land recognizes the importance of consistent, uniform and integrated management of stormwater operations, design standards, and capital improvements within its jurisdiction. The City employs a Drainage Engineer whose sole responsibility is to ensure proper drainage controls and adherence to design standards throughout the community. In 2000, the City of Sugar Land adopted a Master Drainage Plan (MDP) which undergoes periodic revisions as deemed necessary. The City's MDP is a conceptual planning document that identifies various watersheds located within the City and is utilized to assist in policy development and the identification of future drainage studies within the community.

In addition, the Street/Drainage Division within the Public Works Department is responsible for the administration and operation of the City's public streets, sidewalks, bridges, and drainage system.

The Street/Drainage Division responsibilities include the inspection and maintenance of City infrastructure:

- 811 lane miles of streets
- 367 miles of sidewalks
- 230 miles of storm sewer/open ditches
- 5,778 storm inlets
- 27 bridges

The Division is responsible for the inspection and maintenance of 230 miles of storm sewer lines and open ditches, the inspection and cleaning of the City's 5,778 storm drain inlets during and after rain events, and the maintenance of a positive flow for all open ditches. Periodic re-grading is required when the ditches become overly silted and stagnant.

The Street/Drainage Division is also responsible for contract development, administration, and inspection of street sweeping services provided to arterial streets, major collector streets and TxDOT intersections of City streets. The primary objective of the street-sweeping program is to provide routine sweeping and cleaning of high traffic areas throughout the City where accumulations of debris occur.

The City of Sugar Land also manages the rights-of-way (ROW) that traverse its limits. The City does not own the property; however, the City manages the ROW in order to serve the health, safety, and transportation needs of the community. The Rights-of-Way Division is responsible for the mowing of approximately 436 acres of public ROW and drainage easements throughout the City. Rough cut mowing is done 14 to 36 times throughout the year, depending on the location, and groom cut mowing is done 44 times throughout the year.

1.1.5 MS4 Jurisdictional Overlap

The City of Sugar Land's drainage operations have jurisdictional overlap with several levee improvement districts (LIDs), municipal utility districts (MUDs), and Fort Bend County.

There are several LIDs and MUDs that are partially or fully located within the corporate city limits of Sugar Land. These entities have the similar authority and responsibility over drainage operations within their boundaries as the City. Generally, LIDs are formed to coordinate and finance the construction of a levee whose purpose is to protect a designated area from the affects of potential floodwaters. In contrast, MUDs are political subdivisions of the State who are authorized by the Texas Commission on Environmental Quality (TCEQ) to provide water, sewage, and drainage services to residents within their boundaries. While LIDs will continue to operate in order to maintain a levee within their boundaries, MUDs located within the City of Sugar Land will be dissolved upon payment of the entity's debt. Both LIDs and MUDs are classified as MS4s and are subject to the state and federal stormwater requirements.

In addition, Fort Bend County is also classified as an MS4 operator, subject to the state and federal stormwater requirements. Stormwater and drainage activities in Fort Bend County are implemented through the Fort Bend County Drainage District (Drainage District). The primary mission of the Drainage District is to maintain the drainage channels in their existing flow conditions. The secondary mission is to provide a review of plats and drainage plans of new development to be approved by the Commissioners Court to assure the elimination of an adverse drainage impact on current and future residents. The Drainage District's primary activities are associated with flood control in Fort Bend County, and the Drainage District does not own or maintain storm sewer systems or drainage facilities other than local drainage channels.

In order to prevent duplication of efforts, the City will coordinate with these entities to combine resources and maximize program effectiveness. This coordination of resources will be performed during permit year two by an independent contractor.

1.2 STORMWATER MANAGEMENT

1.2.1 Introduction to Stormwater Management

Stormwater management is an essential component of community infrastructure and serves to provide both increased convenience and protection of lives and property. A properly designed system will detain and carry away runoff from rainfall events while allowing the movement of vehicles to homes and businesses. The City's storm sewer system was designed to capture and transport rain water runoff into local creeks and rivers to prevent street and neighborhood flooding.

Active management of stormwater by local jurisdictions can protect public health and create a more attractive community. Drainage systems influence the water quality of the natural waterways that receive the area's rainfall runoff. Creeks, rivers, and bays provide wildlife habitat and support commercial and recreational fisheries, boating and ecotourism. They are fundamental to the quality of life in this region.

Stormwater runoff can cause water pollution by carrying pollutants into the local water supply. Providing Sugar Land with a stormwater management system that allows sustainable community growth is a continuing challenge. It involves educating residents, setting minimum standards, planning for future detention basins and drainage channels, working with private development

interests, coordinating with governmental agencies, and maintaining the efficiency of the existing system of culverts, pipes, and other structures.

Recognizing that stormwater system development should be guided by adopted policies and a comprehensive plan, the City of Sugar Land has developed this five-year Stormwater Management Program to address the issue.

1.2.2 Benefits of Stormwater Management

By more effectively managing stormwater runoff, local governments can protect public health, spur economic development, and create a more attractive community. Contamination of community drinking water threatens public health and causes significant cleanup expense. Preventing contamination of drinking water avoids the costs of additional treatment facilities, locating new drinking water sources, and restoring citizens' confidence in their drinking water, public utilities, and community leaders.

Many techniques local governments use to address stormwater can also double for recreational purposes. Natural vegetation buffers preserved along rivers and other bodies of water can provide ideal locations for hiking trails. Stormwater detention ponds can also be utilized as bird-watching hot spots. Open spaces preserved for drainage can be used for soccer fields, golf courses, and picnic spots. There are a wide variety of opportunities.

1.2.3 Municipal Facilities Subject to TPDES Permits

The City of Sugar Land owns and operates a variety of facilities that are subject to TPDES stormwater regulations.

City of Sugar Land Municipal Facilities Subject to TCEQ Permits		
Facility Name	**Facility Address**	**TCEQ Permits**
Sugar Land Municipal Airport	12888 S. Highway 6 Sugar Land, TX 77478	TXR05L328; TXR05L329; TXR05L331; TXR05L338; TXR05V258
Sugar Land Regional Wastewater Treatment Plant	16451 Southwest Freeway Sugar Land, TX 77479	TX0058114000; WQ0011317001; TPDES0058114;
Sugar Land South Wastewater Treatment Plant	4802 Oilfield Road Sugar Land, TX 77479	TPDES 0096881; TX0096881; WQ0012833002
City of Sugar Land	P.O. Box 110 Sugar Land, TX 77487-0110	TXR05I575

1.3 STORMWATER REGULATION

1.3.1 History of Stormwater Regulation

In 1972, Congress amended the Clean Water Act (CWA) to prohibit the discharge of pollutants into the waters of the United States from a point source unless the discharge is authorized by a NPDES permit. The NPDES program initially targeted easily detectable sources of water pollution such as municipal sewage and industrial process wastewater and was successful in

improving water quality. However, the NPDES program was not addressing other significant sources of water quality impairment – nonpoint sources such as runoff from agricultural and forestry operations, and stormwater runoff.

In 1987, Congress, once again, amended the CWA in order to address the additional sources of water quality impairment throughout the United States. In response to the 1987 amendments to the CWA, the U.S. Environmental Protection Agency (EPA) initiated a comprehensive, two-phase approach to stormwater quality. On November 15, 1990, the EPA published Phase I of the National Pollutant Discharge Elimination System (NPDES) program requiring permit coverage for stormwater discharges from medium and large municipal separate storm sewer systems (MS4s) with populations of 100,000 or more and several categories of industrial activities, including construction sites that disturb five or more acres of land. Phase I of the NPDES program addresses sources of stormwater runoff with the greatest potential to impact water quality. On December 8, 1999, the EPA published Phase II of the NPDES program requiring that small MS4s with populations less than 100,000 and construction activities disturbing between one and five acres of land obtain permit coverage.

In response to the NPDES permit requirements, the EPA delegated regulatory authority in Texas to the State of Texas, and with the authority of the Texas Water Code and the CWA, the Texas Commission on Environmental Quality (TCEQ) assumed the authority to issue MS4 stormwater permits. As a regulatory entity, the TCEQ developed the Texas Pollutant Discharge Elimination System (TPDES) program, a program patterned after the federal NPDES stormwater program, which now has federal regulatory authority over discharges to waters of the United States.

The national stormwater regulations originally applied only to cities with populations larger than 100,000. However, the NPDES Phase II rule expanded the scope of the stormwater program to include smaller local governments. Sugar Land and other small municipalities with populations less than 100,000 are now regulated as Phase II municipalities under the NPDES and TPDES MS4 permit requirements.

On August 13, 2007, the TCEQ issued TPDES General Permit No. TXR040000 for stormwater discharges from Phase II cities in Texas. In accordance with the permit requirements, Phase II cities are required to obtain permit coverage within 180 days of the permit issuance date and will be given five years to fully implement a Stormwater Management Program (SWMP). The City will also be required to submit annual reports to the TCEQ during the permit period.

Sugar Land qualifies as a Phase II MS4 and must obtain permit coverage. This report describes recommended BMPs that will be incorporated into the SWMP and implemented by the City of Sugar Land within the TPDES permit period.

1.3.2 TPDES Phase II Minimum Control Measures

The TPDES permit requires the permittee to select *appropriate* BMPs for each of six MCMs and an optional seventh MCM. In other words, the TCEQ expects Phase II permittees to tailor their stormwater management plans and their BMPs to fit the particular characteristics and needs of the permittee and the area served by its MS4. Therefore, the operator of a regulated storm sewer

system can take advantage of the flexibility provided by the permit to utilize the most suitable MCMs for its MS4.

To qualify for permit coverage, the MS4 must develop a SWMP that describes the BMPs they will develop and implement to minimize the discharge of pollutants from the MS4 to the maximum extent practicable. The seven MCMs as defined by the TCEQ are as follows:

- *Public Education and Outreach* - The MS4 is required to develop and implement a Public Education Program, or equivalent outreach activities, to distribute information to the community about impacts of stormwater discharges on water quality, the hazards associated with illegal discharges and the improper disposal of waste, and steps the public can take to reduce pollutants in stormwater runoff.
- *Public Involvement and Participation* - The MS4 operator must implement a public involvement/participation program to include opportunities for constituents within the MS4 area to participate in the SWMP development and implementation.
- *Illicit Discharge Detection and Elimination* – The MS4 must develop, implement, and enforce a program to detect and eliminate illicit discharges. As part of this program, the MS4 must develop a storm sewer system map with locations of all outfalls, establish an ordinance (or other regulatory mechanism) prohibiting illicit discharges, establish enforcement procedures and actions, detect and address illicit discharges (including illegal dumping), and inform employees, businesses and general public of the program.
- *Construction Site Stormwater Runoff Control* – The MS4 is required to develop, implement, and enforce a program to reduce pollutants in any stormwater runoff to the small MS4 from construction activities disturbing greater than or equal to one acre of land (including smaller sites that are part of a larger common plan of development), through the development of an ordinance (or other regulatory mechanism) to require erosion and sediment controls, as well as sanctions to ensure compliance, and procedures for site plan and public comment review. The MS4 must also require construction site operators to implement erosion and sediment control BMPs and to control waste.
- *Post-construction Stormwater Management in New Development and Redevelopment* The MS4 is required to develop, implement, and enforce a program to address stormwater runoff from new development and redevelopment projects that disturb greater than or equal to one acre of land (including smaller sites that are part of a larger common plan of development), through the development of an ordinance (or other regulatory mechanism) to address post-construction runoff, the development and implementation of structural and non-structural BMPs appropriate to the community, and procedures to ensure adequate long-term operation and maintenance.
- *Pollution Prevention/Good Housekeeping for Municipal Operations* – The MS4 is required to develop and implement an operation and maintenance program that has the goal of preventing or reducing pollutant runoff from municipal operations.
- *Authorization for Municipal Construction Activities* – As an optional MCM, the MS4 may develop a MCM for municipal construction activities as an alternative to the MS4 operator seeking coverage under TPDES general permit TXR150000 for each municipal construction activity performed.

In the SWMP, the permittee must identify BMPs that will be implemented during the five-year permit term, an implementation schedule for the implementation of the selected BMPs, the responsible persons accountable for the BMP implementation, and the measurable goals by which the permittee will self-report progress in an Annual Report to the TCEQ. Existing programs or BMPs may also be used to fulfill the requirements of the general permit.

In order to achieve permit requirements, the City has developed a SWMP detailing a series of selected BMPs for each of the six minimum control measures. City staff selected these BMPs and associated measurable goals after reviewing EPA and TCEQ guidance documentation, attending a series of training courses, consulting with other MS4s, and assessing the developmental needs and resources of the City. As outlined throughout the SWMP, each of the BMPs utilizes a series of measurable goals and evaluation techniques to ensure appropriate program implementation, and an implementation schedule details program development throughout the five year permit period.

1.3.3 Capacity & Authority of MS4s to Implement and Enforce MCMs and BMPs

As detailed in TPDES General Permit TXR040000, the MS4 permit will require, at a minimum, that the MS4 develop, implement, and enforce a SWMP designed to reduce the discharge of pollutants from the MS4 to the maximum extent practicable, to protect water quality, and to satisfy the appropriate water quality requirements of the Clean Water Act. The MCMs that have specific enforcement requirements are:

- *Illicit Discharge Detection and Elimination* – The illicit discharge MCM states that the MS4 must establish a program to detect and eliminate illicit discharges to the small MS4, and to the extent allowable under state and local law, the permittee must utilize an ordinance or other regulatory mechanism to prohibit and eliminate illicit discharges.
- *Construction Site Stormwater Runoff Control* – This MCM requires the MS4 to develop, implement, and enforce a program to reduce pollutants in any stormwater runoff to the small MS4 from construction activities that result in a land disturbance of greater than or equal to one acre or less than one acre if it is part of a larger common plan of development. The program must include the development and implementation of an ordinance or other regulatory mechanism to require erosion and sediment controls, as well as sanctions to ensure compliance.
- *Post-Construction Stormwater Management in New Development and Redevelopment* – The post-construction MCM requires the MS4 to develop, implement, and enforce a program to address stormwater runoff from new development and redevelopment projects that disturb greater than or equal to one acre of land, including projects less than one acre that are part of a larger common plan of development. The program must ensure that controls are in place that would prevent or minimize water quality impacts. The strategy must include a combination of structural and nonstructural controls, including the development of an ordinance to address post-construction runoff.

While the permit states that a small MS4 must develop an enforcement program to the extent allowable under state and local law, the MS4 must develop a program that will reduce the discharge of pollutants from the MS4 to the maximum extent practicable, protect water quality,

and satisfy the appropriate water quality requirements of the CWA. This permit specification will require effective enforcement mechanisms.

SECTION 2 – MCM 1: PUBLIC EDUCATION AND OUTREACH

2.0 OVERVIEW

Public education and outreach is a key component to the success of a SWMP. Through public education, residents gain an understanding of how their actions affect stormwater quality, and they become more informed about water quality issues in their community. When citizens understand that poor water quality can result from common everyday activities, a major source of stormwater pollutants can be voluntarily eliminated. Perhaps more importantly, an educated public can be a broad base of support for a SWMP. The objective of a public education program is to promote a clear identification and understanding of the issues associated with stormwater pollution and to promote community ownership of the problems and solutions.

The City is dedicated to educating the Sugar Land community on the impacts stormwater can have on water quality, the hazards associated with illegal discharges, and the steps that can be taken to reduce pollutants in stormwater runoff.

2.1 FEDERAL REGULATORY REQUIREMENTS

40 CFR 122.34 (b)(1) states that the MS4 operator must implement a public education program to distribute educational material to the community or conduct equivalent outreach activities about the impacts of stormwater discharges on water bodies and the steps that the public can take to reduce pollutants in stormwater runoff.

2.2 TPDES PHASE II PERMIT REQUIREMENTS

Public Education and Outreach on Storm Water Impacts

(a) A public education program must be developed and implemented to distribute educational materials to the community or conduct equivalent outreach activities that will be used to inform the public. The MS4 operator may determine the most appropriate sections of the population at which to direct the program. The MS4 operator must consider the following groups and the SWMP shall provide justification for any listed group that is not included in the program:

(1) residents;
(2) visitors;
(3) public service employees;
(4) businesses;
(5) commercial and industrial facilities; and
(6) construction site personnel.

The outreach must inform the public about the impacts that storm water run-off can have on water quality, hazards associated with illegal discharges and improper disposal of waste, and steps that they can take to reduce pollutants in storm water runoff.

(b) The MS4 operator must document activities conducted and materials used to fulfill this control measure. Documentation shall be detailed enough to demonstrate the amount of resources used to address each group. This documentation shall be retained in the annual reports required in Part IV.B.2 of this general permit.

2.3 DISCUSSION OF ACTIVE STORMWATER PROGRAMS

The City of Sugar Land currently institutes a variety of public outreach and education programs to educate and inform the community of the effects their actions have on the environment.

2.3.1 Stormwater Quality Education Materials

The Public Works Department, in coordination with the Public Communications Department, has developed a variety of educational materials to inform the community of the effects polluted stormwater runoff can have on water quality and how individuals can minimize the impacts they have on the environment. Current publications include:

- *Stormwater and the Construction Industry* brochure
- *Sugar Land Today* community newsletter
- Annual stormwater educational magnet

In addition to the City-designed publications, the Public Works Department has also obtained a variety of educational resources from the TCEQ, the EPA, the Houston-Galveston Area Council (H-GAC), and other MS4 communities throughout the United States. These educational materials are currently distributed at community events, City departmental offices, local community meetings, through city-wide mailings and upon request.

The City of Sugar Land will continue to develop, obtain, and distribute educational materials to the public on a variety of topics including, but not limited to:

- Lawn and garden management;
- Proper handling and disposal of household hazardous waste (HHW);
- Pet waste;
- Stormwater pollution;
- Littering;
- Illicit discharges;
- Commercial and industrial stormwater impacts; and
- Waste management.

Measurable Goals:

- Continue to develop and acquire stormwater quality education materials.
- Distribute printed materials and promotional items throughout the community as appropriate in order to educate community residents, public service employees,

businesses, commercial and industrial facilities, and construction site personnel on the importance of stormwater management activities.

- Distribute printed materials to local hotels, real estate agencies, and other similar businesses that may have contact with visitors to the area.

Evaluation:

- Record the quantity of materials distributed throughout the community and report the data within the annual SWMP reports to the TCEQ.
- Utilize data from year one distribution quantities as a baseline of reference for additional permit year distributions and annually increase distributions.

2.3.2 Municipal Website and Cable Television Channel

The City of Sugar Land will utilize the municipal website and cable television channel to inform the public of the issues associated with stormwater pollution and the issues of concern detailed in the SWMP. The City website currently contains information about non-point source (NPS) pollution and the impact that NPS pollution has on water quality. However, the information is embedded in the web pages associated with the Public Works Department. In an attempt to highlight the SWMP and issues associated with NPS pollution, a section of the City's website will be dedicated to stormwater education and outreach. The web page will include general water quality information, educational materials that the City has developed, and information on topics such as litter control, recycling, water conservation, and the proper management of pesticides, fertilizer, used oil, and household hazardous waste (HHW).

The City currently operates a municipal cable television station where residents can obtain information regarding city policies, programs, procedures, and upcoming events. The municipal station will be utilized to highlight public service announcements (PSAs) obtained through the TCEQ, the EPA, and additional outside educational sources and information regarding the development and implementation of the SWMP.

Measurable Goals:

- Update the website and cable television channel as appropriate to reference changes to the SWMP, the availability of additional educational resources, public service announcements, and upcoming community events.
- Expand the stormwater section of the City's website to include stormwater educational materials, the adopted SWMP, staff contact information, event dates and schedules, and annual reports.

Evaluation:

- Track and report the number of individuals who view stormwater education material on the website.
- Ensure that periodic updates of information are performed.

- Report the number of public service announcements and stormwater educational resources placed on the municipal television station.

2.3.3 Storm Drain Marker Installation Program

In order to prevent pollution within our waterways and educate residents on the effects their actions may have on the environment, the Stormwater Division, in coordination with KSLB, initiated a Storm Drain Marker Installation Program. Since the program's inception in spring 2006, three neighborhoods with approximately 750 storm drain inlets have been marked through volunteer programs and residential development. In addition to marking the storm drains, the volunteers also place a door tag on residents' doors informing them of the program and educating them on their environmental responsibilities within the community.

Measurable Goals:

- Expand the Storm Drain Marker Installation Program throughout the permit period to mark approximately 600 storm drains annually.
- Utilize volunteer organizations such as Eagle Scouts, school organizations, and neighborhood organizations for program implementation.
- Annually inspect storm drain markers, and replace them as needed.

Evaluation:

- Record and report the number of storm drains marked and volunteers utilized through the Storm Drain Marker Installation Program
- Compare the actual number of marked storm drains to the annual target goal of 600 marked storm drains.

2.3.4 Student Education

The City of Sugar Land currently employs a variety of avenues to educate students within the community. The City currently sponsors an annual water quality and conservation book cover contest that is open to elementary age children in Fort Bend Independent School District (FBISD) and local private schools. As an additional educational component to the contest, the City provides approximately 15,000 book covers of the winners' artwork to area schools. The City, in coordination with KSLB, has also initiated a Stormwater Education Program within FBISD. Through this program, trained community volunteers will make presentations to local schools about stormwater pollution and water quality.

Measurable Goals:

- Annually sponsor a water quality and conservation book cover contest and provide book covers detailing the winners' artwork to local schools within the community.
- Provide book covers to local schools detailing stormwater related issues of concern.

- Expand the Stormwater Education Program that is currently underway throughout FBISD and local private schools.

Evaluation:

- Utilize data from year one book cover distribution quantities as a baseline of reference for additional permit year distributions and annually adjust these values according to school enrollment statistics.
- Record and report the number of presentations performed through the Stormwater Education Program and the number of children who view the presentations each permit year.
- Record and report the number of book covers annually provided to local schools.

2.3.5 Community Events

Each Year, the Public Works Department sponsors and co-sponsors a variety of community events where residents can obtain educational information regarding stormwater pollution, water conservation, and recycling. These events include:

- Paint Collection;
- Christmas Tree Recycling;
- Don't Mess With Texas Trash-Off;
- Electronics Recycling; and
- Earth Day Festivities.

During each of these events, participants receive educational materials on a variety of topics.

In addition to these events, residents can also obtain information at annual Community Town Hall Meetings where the Stormwater Division prepares a booth of educational materials and is on hand to answer any questions residents may have concerning water quality in the community.

Measurable Goals:

- Continue to sponsor and co-sponsor community events to educate the community on the importance of stormwater management activities.
- Annually expand the community events to incorporate additional members of the community.

Evaluation:

- Record and report the number of individuals who attend the community events and the quantity of educational materials provided to residents at the events.
- Utilize data from year one attendance as a baseline of reference for additional permit year attendance levels and annually increase attendance.

2.3.6 Cast Grates

Custom-designed storm drain cast grates heighten public awareness by informing the public that anything entering a storm sewer system is discharged untreated into the community waterways. The City's design standards currently reference the installation requirement of custom-made cast grates for new development and re-development of infrastructure within the corporate city limits. Under the current program, existing cast grates are not retrofitted unless their replacement is warranted; however, the City will consider the development of a program component to retrofit the existing cast grates.

New developments outside the corporate city limits but within the City's extraterritorial jurisdiction are contractually required to install the custom-designed cast grates through developmental agreements. The custom-designed grates contain the message, "Dump No Waste, Drains to Waterways."

Measurable Goals:

- Evaluate and modify design standards for cast grates as needed.
- Evaluate the addition of a program component to retrofit existing cast grates.

Evaluation:

- Record the number of cast grates that are installed through the development and re-development process.

2.4 DISCUSSION OF SCHEDULED BEST MANAGEMENT PRACTICES

In addition to the programs the City is currently implementing, we have selected several additional programs to implement over the course of the permit period.

2.4.1 Business Education/Recognition Program

Sugar Land will establish an education and incentive program for businesses to include recognition in the form of plaques, stickers, and articles in the City newsletter. This program will include the development of a series of guidelines for area businesses of practices that will assist the business in minimizing pollution.

As part of the Business Recognition Program, specific guidelines may be developed for certain types of businesses. The City may target businesses with higher pollution potential by developing a Clean Water Business Partner Program with businesses such as dry cleaners.

A Pollution Prevention Guide for Businesses that was developed by Galveston Bay Estuary Program can be distributed as part of this program. In addition, TCEQ has a Small Business and Environmental Assistance Program that conducts Pollution Prevention Audits (non-enforcement program). The business education program can use the existing TCEQ pollution prevention auditing capability to assist with the program. The program can be done by nomination or

application, with inspections of proposed participants, and could recognize participation in TCEQ pollution prevention audits. Environmentally aware businesses might be more willing to partner with municipalities and sponsor programs.

Measurable Goals:

- Develop and implement a Business Education/Recognition Program for businesses operating within the City of Sugar Land.
- Implement an educational outreach program to inform businesses of the program.

Evaluation:

- Report the number of businesses participating in the program in the annual SWMP reports to the TCEQ.
- Compile the type and quantity of educational outreach materials distributed to the business community to promote the program.
- Utilize data from year one participation levels as a baseline of reference for additional permit year participation and annually increase program participation.

2.4.2 Mobile Business Education Program

In conjunction with the Business Education/Recognition Program, Sugar Land will develop and implement a multi-language mobile business education program. This program will focus on traditionally mobile businesses that are often more difficult to monitor because they undertake activities at a number of locations. Mobile businesses include lawn maintenance, carpet cleaning, painting and decorating, pest control, pool maintenance, and gardening.

Initially, Sugar Land's mobile business education program will be primarily targeted toward lawn maintenance companies, since many homeowners in the community pay a contractor for this service. Over time, the program can be expanded to include additional mobile businesses.

The primary objective of this program is to educate businesses on the ways they can change or improve their work practices to:

- Reduce or avoid stormwater pollution;
- Reduce the generation of waste;
- Increase resource recovery through recycling, reuse and composting;
- Achieve environmental best practices through cleaner production techniques;
- Achieve cost savings in terms of reduced materials and water usage; and
- Improve their environmental image within the local community.

Businesses engaged in landscaping activities should be educated in the proper use of landscaping chemicals and in proper green waste disposal methods. In addition, workers should be trained to

pick up any litter before mowing so that the trash doesn't get shredded and washed into the storm drain. The goal of this educational outreach program is to reduce chemical and green waste runoff to natural watercourses. This is accomplished by minimizing the use of herbicides, fertilizers, and insecticides to no more than the recommended levels and by properly disposing of green waste resulting from mowing, tree trimming, weed eating, and edging.

Measurable Goals:

- Develop or acquire multilingual educational training materials.
- Develop and implement a Mobile Business Education Program for businesses operating within the City of Sugar Land.
- Implement an educational outreach program to inform businesses of the program and promote program participation.

Evaluation:

- Track the quantity of educational outreach materials distributed to the business community to promote the program.
- Report the number of businesses participating in the program in the annual SWMP reports to the TCEQ.
- Utilize data from year one participation levels as a baseline of reference for additional permit year participation and annually increase program participation.

2.4.3 Speakers' Bureau

Organizations throughout the community hold regular meetings and request speakers to present community information to their members. These organizations range from gardening clubs, the Chamber of Commerce, school groups, Girl Scouts, Boy Scouts, and environmental clubs. Upon request, the City will make presentations to community organizations in regard to the causes and effects of stormwater pollution and what individuals can do to reduce their impact to the environment.

Measurable Goals:

- Develop and implement a speakers' bureau program to inform individuals of the issues associated with water quality and stormwater pollution within the community.
- Develop and continue to update a list of civic organizations that may benefit from a presentation on water quality and stormwater pollution.
- Annually submit at least four proposals to local community groups encouraging them to host a speaker at one of the group's meetings.

Evaluation:

- Record the name of the groups who received proposals from the City and report which groups accepted the proposal.
- Document the presentation date, the community group addressed, and the number of individuals who attend each presentation.

Table 2 - 1 PUBLIC EDUCATION AND OUTREACH								
Best Management Practice	**Measurable Goals**	**Permit Year (Aug. to Aug.)**					**Key Departments/Divisions**
		1	**2**	**3**	**4**	**5**	
Stormwater Quality Education Materials	- Continue to develop and acquire stormwater quality educational materials.						Public Works/Communications
	- Distribute printed materials\promotional items to educate residents, City employees, businesses, commercial/industrial facilities, & construction site personnel.						Public Works/Utilities/Communications
	- Distribute printed materials to local hotels, real estate agencies, and other similar businesses that may have contact with visitors to the area.						Public Works/Communications
Municipal Website/Cable Television Channel	- Update website and cable television channel as appropriate to reference changes to the SWMP, the availability of educational resources, PSAs, and community events.						Public Works/Communications
	- Expand stormwater section of website to include educational materials, the adopted SWMP, contact information, event dates & schedules, and annual reports.						Public Works/Communications/ Information Technology
Storm Drain Marker Installation Program	- Expand the Storm Drain Marker Installation Program throughout the permit period to mark approximately 600 storm drains annually.						Public Works
	- Utilize volunteer organizations such as Eagle Scouts, school organizations, and neighborhood organizations for program implementation.						Public Works
	- Annually inspect storm drain markers, and replace them as needed.						Public Works
Student Education	- Annually sponsor a water quality and conservation book cover contest and provide book covers detailing the winners' artwork to local schools within the community.						Public Works/Utilities/Communications
	- Provide book covers to local schools detailing stormwater related issues of concern.						Public Works
	- Expand the Stormwater Education Program currently underway throughout FBISD and local private schools.						Public Works/Utilities
Community Events	- Continue to sponsor and co-sponsor community events to educate the community on the importance of stormwater management activities.						Public Works
	- Annually expand the community events to incorporate additional members of the community.						Public Works
Cast Grates	- Evaluate and modify design standards for cast grates as needed.						Public Works/Utilities/Engineering
	- Evaluate the addition of a program component to retrofit existing cast grates.						Public Works/Utilities/Engineering

Table 2 - 1 PUBLIC EDUCATION AND OUTREACH							
Best Management Practice	**Measurable Goals**	**Permit Year (Aug. to Aug.)**					**Key Departments/Divisions**
		1	**2**	**3**	**4**	**5**	
Business Education/Recognition Program	- Develop and implement a Business Education/Recognition Program for businesses operating within the City of Sugar Land.						Public Works/Utilities/Code Enforcement/Communications
	- Implement an educational outreach program to inform businesses of the program.						Public Works/Utilities/Code Enforcement/Communications
Mobile Business Education Program	- Develop or acquire multilingual educational training materials.						Public Works/Code Enforcement/Communications
	- Develop and implement a Mobile Business Education Program for businesses operating within the City of Sugar Land.						Public Works/Code Enforcement
	- Implement an educational outreach program to inform businesses of the program and promote program participation.						Public Works/Code Enforcement
Speakers' Bureau	- Develop and implement a speakers' bureau program to inform individuals of the issues associated with water quality and stormwater pollution within the community.						Public Works/Utilities
	- Develop a list of civic organizations that may benefit from a presentation on water quality and stormwater pollution.						Public Works
	- Annually submit at least four proposals to local community groups encouraging them to host a speaker at one of the group's meetings.						Public Works

Begins Permit Year 1	Begins Permit Year 2	Begins Permit Year 3	Begins Permit Year 4	Begins Permit Year 5

SECTION 3 – MCM 2: PUBLIC INVOLVEMENT AND PARTICIPATION

3.0 OVERVIEW

Public involvement and participation is important in the development and implementation of the SWMP. Involving the public goes hand-in-hand with a local government's public education efforts and can help accomplish some of the same goals. Public involvement and participation can also create more opportunities to gain expertise from interested individuals and other organizations or governmental entities. These added resources can add to the success of the program.

3.1 FEDERAL REGULATORY REQUIREMENTS

40 CFR 122.34 (b)(2) states that the MS4 operator must, at a minimum, comply with state, tribal, and local public notice requirements when implementing a public involvement/participation program.

3.2 TPDES PHASE II PERMIT REQUIREMENTS

Public Involvement/Participation

The MS4 operator must, at a minimum, comply with any state and local public notice requirements when implementing a public involvement/participation program. It is recommended that the program include provisions to allow all members of the public within the small MS4 the opportunity to participate in SWMP development and implementation. Correctional facilities will not be required to implement this MCM.

3.3 DISCUSSION OF ACTIVE STORMWATER PROGRAMS

The City of Sugar Land currently institutes a variety of public involvement and participation programs to educate and inform the community of the effects their actions have on the environment.

3.3.1 Storm Drain Marker Installation Program

In order to prevent pollution within our waterways and educate residents on the effects their actions may have on the environment, the Stormwater Division, in coordination with KSLB, initiated a Storm Drain Marker Installation Program. This program is further discussed in Section 2.3.3.

3.3.2 Adopt-a-Spot Program

In order to encourage litter reduction and beautification throughout the community, the City of Sugar Land developed the Adopt-a-Spot program, a program patterned after the Texas

Department of Transportation's Adopt-a-Highway program, which encourages residents and businesses to actively participate in the environmental community.

KSLB currently administers the Adopt-a-Spot program on behalf of the City, and through the program, volunteer groups clean 23 city parks and roadways quarterly. As an element of the SWMP, Sugar Land will continue to expand this program to include litter reduction along community waterways, drainage ditches, and other stormwater channels throughout the City. This program expansion will also include an annual stream clean-up event, most likely in coordination with the community's Don't Mess With Texas Trash-Off litter collection event.

Measurable Goals:

- Perform collection activities at active Adopt-a-Spot locations on a quarterly basis.
- Expand the program to include additional active locations, specifically waterways, ditches, rights-of-way, and other stormwater channels.
- Develop and distribute educational outreach materials to enhance program exposure and publicity.

Evaluation:

- Annually report the number of active Adopt-a-Spot locations.
- Record the names of participating organizations and report the number of volunteer hours each organization contributes to the program.
- Track the volume of garbage collected at each Adopt-a-Spot location.
- Compile the type and quantity of educational outreach materials distributed to the community to promote the program.

3.3.3 Texas Stream Team Water Quality Monitoring Program

In order to obtain additional information regarding the community's natural resources and educate residents on the effects of pollution on our local waterways, the City of Sugar Land coordinated with H-GAC in the summer of 2006 to develop a Texas Watch program within the City, and in the spring of 2008, Texas Watch formally changed their name to Texas Stream Team, *Caring for Our Waters*. Texas Stream Team is a network of trained volunteers who monitor our local waterways and collect quality-assured information about the natural resources of Texas that can be utilized by governmental organizations and the public. Since the program's inception, seven volunteers have been trained to monitor locations within the City of Sugar Land.

As the program expands, additional volunteers will undergo Texas Stream Team training to become a water quality monitor. Volunteers will be given water quality monitoring kits and will be asked to monitor water quality in a designated area on a monthly basis. In order to ensure the quality of the data, the City reviews all data submitted by the Texas Stream Team volunteers, and all volunteers follow the Texas Stream Team certification guidelines. Volunteer efforts can provide a substantial amount of water quality data which can be used to analyze and assess water

quality throughout the area. This data can also assist in identifying areas of concern where additional sampling may be necessary.

Measurable Goals:

- Perform water quality monitoring activities at active monitoring locations on a monthly basis.
- Expand the program to include additional active monitoring locations and volunteer water quality monitors.
- Develop and distribute educational outreach materials to enhance program exposure and publicity.

Evaluation:

- Annually report the number of active Texas Stream Team Water Quality Monitoring locations.
- Record the names of participating individuals and report the number of volunteer hours each individual contributes to the program.
- Compile the type and quantity of educational outreach materials distributed to the community to promote the program.

3.3.4 Community Events

Each year, the Public Works Department sponsors and co-sponsors a variety of community events where residents can obtain educational information regarding stormwater pollution, water conservation, and recycling. These events are discussed in greater detail in Section 2.3.5.

3.3.5 Reforestation Program

Annually, the City of Sugar Land and KSLB co-sponsor a Tree Celebration in honor of Arbor Day. During the celebration, community volunteers and City staff participate in the planting of native trees at a designated location within the community. City staff will annually select a location for the implementation of the reforestation project. Representatives from KSLB and the City of Sugar Land are available to answer residents' questions, and a certified arborist is on-hand to offer tree care and tree trimming tips.

Measurable Goals:

- Continue to sponsor a Tree Celebration promoting community reforestation in honor of Arbor Day.
- Develop and distribute educational materials reflecting the importance of trees throughout the community.
- Participate in the Tree City USA Program, a program sponsored by the Arbor Day Foundation, the USDA Forest Service, and the National Association of State Foresters

that provides direction and technical assistance for urban and community forestry programs who would like to become a Tree City.

Evaluation:

- Record the number of trees planted during each reforestation project.
- Track the number of residents who receive tree saplings and the number of tree saplings provided to the community.
- Compile the type and quantity of educational outreach materials distributed to the community to promote the program.
- Become a Tree City through the Tree City USA Program.

3.3.6 Community Environmental Education Classes

In order to educate the community and promote public involvement and participation, KSLB, in coordination with the City of Sugar Land, sponsors a variety of environmental education classes throughout the year. The classes are open to members of the Sugar Land community and include information from a variety of topics:

- Tree Care
- Soil and Composting
- Vermicomposting

KSLB and the City of Sugar Land will continue to offer these classes to individuals throughout the community. Residents will be given multiple opportunities to attend classes offered during both the spring and the fall.

Measurable Goals:

- Continue to sponsor community environmental education classes.
- Increase the variety of educational topics to include water quality aspects such as stormwater, recycling, and conservation.
- Compile and distribute educational outreach materials to enhance program exposure and publicity.

Evaluation:

- Record the number of environmental education classes held annually and the number of people attending those classes.
- Document the number of hours spent educating the attendees.
- Compile the type and quantity of educational outreach materials distributed to the community to promote the program.

3.4 DISCUSSION OF SCHEDULED BEST MANAGEMENT PRACTICES

In addition to the programs the City is currently implementing, we have selected several additional programs to implement over the course of the permit period.

3.4.1 Presentations on the Stormwater Management Program

Informing City Council, municipal staff, the regulated community, and the public on the requirements of the stormwater program will facilitate implementation of the SWMP. During the development process, City staff will make presentations to City Council in order to educate them about the TPDES requirements and finalize the adoption of the City's SWMP. Individuals who are unable to attend the City Council meetings will have an opportunity to view the presentations and discussions through the City's municipal cable television station and streaming video available on the City's website. Citizens also have an opportunity to comment on the development of the SWMP during public input sessions. During the initial development of the SWMP, the City held three public input sessions in July and August 2004 to obtain feedback from the community on the draft SWMP.

Public presentations will be available upon request to a variety of groups and individuals throughout the development and implementation of the SWMP. These groups include, but are not limited to:

- City council
- Municipal staff
- Homeowners associations (HOAs)
- Business associations
- Construction site operators
- Commercial property owners
- Local service clubs
- Other civic groups

Residents attending these meetings will be invited to provide feedback on the elements of the SWMP after each of the presentations. The SWMP will remain a working document where revisions can be made to reflect changing community needs and implementation requirements.

Measurable Goals:

- Develop a presentation/program to inform individuals of the issues associated with water quality and stormwater pollution as detailed within the SWMP.
- Develop and continue to update a list of civic organizations that may benefit from a presentation on the components of the SWMP.
- Annually submit at least four proposals to local community groups encouraging them to host a speaker at one of the group's meetings.

Evaluation:

- Record the name of the groups who received proposals from the City and report which groups accepted the proposal.
- Document the presentation date, the community group addressed, and the number of individuals who attend the presentation.

3.4.2 MS4 Jurisdictional Coordination

The City of Sugar Land's drainage operations have jurisdictional overlap with several levee improvement districts (LIDs), municipal utility districts (MUDs), and Fort Bend County.

There are several LIDs and MUDs that are partially or fully located within the corporate city limits of Sugar Land. These entities have the similar authority and responsibility over drainage operations within their boundaries as the City. Generally, LIDs are formed to coordinate and finance the construction of a levee whose purpose is to protect a designated area from the affects of potential floodwaters. In contrast, MUDs are political subdivisions of the State who are authorized by the Texas Commission on Environmental Quality (TCEQ) to provide water, sewage, and drainage services to residents within their boundaries. While LIDs will continue to operate in order to maintain a levee within their boundaries, MUDs located within the City of Sugar Land will be dissolved upon payment of the entity's debt. Both LIDs and MUDs are classified as MS4s and are subject to the state and federal stormwater requirements.

In addition, Fort Bend County is also classified as an MS4 operator, subject to the state and federal stormwater requirements. Stormwater and drainage activities in Fort Bend County are implemented through the Fort Bend County Drainage District (Drainage District). The primary mission of the Drainage District is to maintain the drainage channels in their existing flow conditions. The secondary mission is to provide a review of plats and drainage plans of new development to be approved by the Commissioners Court to assure the elimination of an adverse drainage impact on current and future residents. The Drainage District's primary activities are associated with flood control in Fort Bend County, and the Drainage District does not own or maintain storm sewer systems or drainage facilities other than local drainage channels.

In order to prevent duplication of efforts, the City will coordinate with these entities to combine resources and maximize program effectiveness. This coordination of resources will be performed during permit year two by an independent contractor.

Measurable Goals:

- Coordinate with MS4s located within the corporate city limits to combine resources and prevent duplication of efforts.

Evaluation:

- Document the names of the entities who have coordinated with the City to combine resources and maximize program effectiveness.

3.4.3 Stormwater Hotline

The City of Sugar Land will develop procedures for receipt and consideration of information submitted by the public regarding the implementation of the SWMP, illicit discharges, including illegal dumping and construction site violations, and additional environmental issues that may affect the community. This hotline will facilitate the acquisition of information from the public and assist in the detection of illicit discharges and environmental pollution throughout the community.

With the development of the stormwater hotline, procedures will be developed to determine who will answer the calls, how the calls will be documented, and who will respond to the calls. Printed educational materials and information displayed on the municipal television station and website will publicize the environmental hotline.

Measurable Goals:

- Establish a stormwater hotline.
- Publicize the stormwater hotline.
- Develop and distribute educational outreach materials to enhance hotline exposure and community publicity.
- Respond to complaints identified through the hotline.

Evaluation:

- Record the number of hotline calls received and classify each call according to issue of concern.
- Compile the type and quantity of educational outreach materials distributed to the community to promote the program.

3.4.4 Environmental Listserv

During the implementation of the SWMP, it is imperative that we inform residents of community events and educational initiatives throughout the community. The City of Sugar Land, in coordination with Keep Sugar Land Beautiful (KSLB), will develop an environmental listserv of individuals and businesses who would like to be informed of community environmental activities. Those individuals who are interested in becoming a member of the listserv will be able to sign-up on the KSLB website.

Measurable Goals:

- Establish an environmental listserv.
- Publicize the development of the environmental listserv to encourage community participation.

- Transmit at least six e-mails to listserv members each year (i.e. one e-mail sent bimonthly) to inform them of community environmental activities and education opportunities.
- Develop and distribute educational outreach materials to enhance listserv exposure and program publicity.

Evaluation:

- Record the number of individuals who become members of the environmental listserv and report that information within the annual SWMP reports to the TCEQ.
- Track the number of e-mails sent to listserv members.

Table 3 - 1 PUBLIC INVOLVEMENT AND PARTICIPATION							
Best Management Practice	**Measurable Goals**	**Permit Year (Aug. to Aug.)**					**Key Departments/Divisions**
		1	**2**	**3**	**4**	**5**	
Storm Drain Marker Installation Program	See Table 2 - 1 Public Education and Outreach						
Adopt-a-Spot Program	- Perform collection activities at active Adopt-a-Spot locations on a quarterly basis.						Public Works
	- Expand the program to include additional active locations, specifically waterways, ditches, rights-of-way, and other stormwater channels.						Public Works
	- Compile and distribute educational outreach materials to enhance program exposure and publicity.						Public Works
Texas Stream Team Water Quality Monitoring Program	- Perform water quality monitoring activities at active monitoring locations on a monthly basis.						Public Works
	- Expand the program to include additional active monitoring locations and volunteer water quality monitors.						Public Works
	- Compile and distribute educational outreach materials to enhance program exposure and publicity.						Public Works
Community Events	See Table 2 - 1 Public Education and Outreach						
Reforestation Program	- Continue to sponsor a Tree Celebration promoting community reforestation in honor of Arbor Day.						Public Works/Parks
	- Develop and distribute educational materials reflecting the importance of trees throughout the community.						Public Works
	- Participate in the Tree City USA Program and become a Tree City.						Public Works/Parks
Community Environmental Education Classes	- Continue to sponsor community environmental education classes.						Public Works
	- Increase the variety of educational topics to include water quality aspects such as stormwater, recycling, and conservation.						Public Works
	- Compile and distribute educational outreach materials to enhance program exposure and publicity.						Public Works

Table 3 - 1 PUBLIC INVOLVEMENT AND PARTICIPATION							
Best Management Practice	**Measurable Goals**	**Permit Year (Aug. to Aug.)**					**Key Departments/Divisions**
		1	**2**	**3**	**4**	**5**	
Presentations on the Stormwater Management Program (SWMP)	- Develop a presentation/program to inform individuals of the issues associated with water quality and stormwater pollution as detailed within the SWMP.						Public Works
	- Develop a list of civic organizations that may benefit from a presentation on the components of the SWMP.						Public Works
	- Annually submit at least four proposals to local community groups encouraging them to host a speaker at one of the group's meetings.						Public Works
MS4 Jurisdictional Coordination	- Coordinate with MS4s located within the corporate city limits to combine resources and prevent duplication of efforts.						Public Works
Stormwater Hotline	- Establish a stormwater hotline.						Public Works/Utilities/Police/Fire/ Communications/Information Technology
	- Publicize the stormwater hotline.						Public Works/Communications
	- Develop and distribute educational outreach materials to enhance hotline exposure and community publicity.						Public Works/Communications
	- Respond to complaints identified through the hotline.						Public Works/Utilities/Police/Fire
Environmental Listserv	- Establish an environmental listserv.						Public Works/Communications/ Information Technology
	- Publicize the environmental listserv.						Public Works/Communications
	- Transmit at least six e-mails to listserv members each year to inform them of community environmental activities and education opportunities.						Public Works
	- Develop and distribute educational outreach materials to enhance listserv exposure and program publicity.						Public Works

Begins Permit Year 1	Begins Permit Year 2	Begins Permit Year 3	Begins Permit Year 4	Begins Permit Year 5

SECTION 4 – MCM 3: ILLICIT DISCHARGE DETECTION AND ELIMINATION

4.0 OVERVIEW

The illicit discharge detection and elimination MCM is intended to detect and eliminate discharges to the MS4 system that are not entirely composed of stormwater. As identified in the Phase II TPDES permit, MS4 permittees are required to develop a strategy to detect and eliminate illicit discharges to the storm drain system. An illicit discharge has been defined by the EPA as "any discharge into a separate storm sewer system that is not composed entirely of storm water."

4.1 FEDERAL REGULATORY REQUIREMENTS

40 CFR 122.34 (b)(3) states that the MS4 operator must develop, implement, and enforce a program to detect and eliminate illicit discharges (as defined at 40 CFR Sec. 122.26 (b)(2)) into your small MS4.

The MS4 operator must:

- Develop, if not already completed, a storm sewer system map, showing the location of all outfalls and the names and location of all waters of the United States that receive discharges from those outfalls;

- To the extent allowable under State, Tribal, or local law, effectively prohibit, through ordinance, or other regulatory mechanism, non-stormwater discharges into your storm sewer system and implement appropriate enforcement procedures and actions;

- Develop and implement a plan to detect and address non-stormwater discharges including illegal dumping, to your system; and

- Inform public employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste.

You need address the following categories of non-storm water discharges or flows (i.e., illicit discharges) only if you identify them as significant contributors of pollutants to your small MS4: water line flushing, landscape irrigation, diverted stream flows, rising ground waters, uncontaminated ground water infiltration (as defined at 40 CFR 35.2005(20)), uncontaminated pumped ground water, discharges from potable water sources, foundation drains, air conditioning condensation, irrigation water, springs, water from crawl space pumps, footing drains, lawn watering, individual residential car washing, flows from riparian habitats and wetlands, dechlorinated swimming pool discharges, and street wash water (discharges or flows from fire fighting activities are excluded from the effective prohibition against non-storm water and need

only be addressed where they are identified as significant sources of pollutants to waters of the United States).

4.2 TPDES PHASE II PERMIT REQUIREMENTS

Illicit Discharge Detection and Elimination

(a) Illicit Discharges

A section within the SWMP must be developed to establish a program to detect and eliminate illicit discharges to the small MS4. The SWMP must include the manner and process to be used to effectively prohibit illicit discharges. To the extent allowable under state and local law, an ordinance or other regulatory mechanism must be utilized to prohibit and eliminate illicit discharges. Elements must include:

(1) Detection

The SWMP must list the techniques used for detecting illicit discharges; and

(2) Elimination

The SWMP must include appropriate actions and, to the extent allowable under state and local law, establish enforcement procedures for removing the source of an illicit discharge.

(b) Allowable Non-Storm Water Discharges

Non-storm water flows listed in Part II.B and Part VI.B do not need to be considered by the MS4 operator as an illicit discharge requiring elimination unless the operator of the small MS4 or the executive director identifies the flow as a significant source of pollutants to the small MS4. In lieu of considering non-storm water sources on a case-by-case basis, the MS4 operator may develop a list of common and incidental non-storm water discharges that will not be addressed as illicit discharges requiring elimination. If developed, the listed sources must not be reasonably expected to be significant sources of pollutants either because of the nature of the discharge or the conditions that are established by the MS4 operator prior to accepting the discharge to the small MS4. If this list is developed, then all local controls and conditions established for these listed discharges must be described in the SWMP and any changes to the SWMP must be included in the annual report described in Part IV.B.2 of this general permit, and must meet the requirements of Part II.D.3 of the general permit.

(c) Storm Sewer Map

(1) A map of the storm sewer system must be developed and must include the following:

i. the location of all outfalls;

ii. the names and locations of all waters of the U.S. that receive discharges from the outfalls; and

iii. any additional information needed by the permittee to implement its SWMP.

(2) The SWMP must include the source of information used to develop the storm sewer map, including how the outfalls are verified and how the map will be regularly updated.

4.3 ALLOWABLE NON-STORMWATER DISCHARGES

The following non-storm water sources may be discharged from the small MS4 and are not required to be addressed in the small MS4's Illicit Discharge and Detection or other minimum control measures, unless they are determined by the permittee or the TCEQ to be significant contributors of pollutants to the small MS4:

- water line flushing;
- runoff or return flow from landscape irrigation, lawn irrigation, and other irrigation utilizing potable water, groundwater, or surface water sources;
- discharges from potable water sources;
- diverted stream flows;
- rising ground waters and springs;
- uncontaminated ground water infiltration;
- uncontaminated pumped ground water;
- foundation and footing drains;
- air conditioning condensation;
- water from crawl space pumps;
- individual residential vehicle washing;
- flows from wetlands and riparian habitats;
- dechlorinated swimming pool discharges;
- street wash water;
- discharges or flows from fire fighting activities (fire fighting activities do not include washing of trucks, run-off water from training activities, test water from fire suppression systems, and similar activities);
- other allowable non-storm water discharges listed in 40 CFR 122.26(d)(2)(iv)(B)(1);
- non-storm water discharges that are specifically listed in the TPDES Multi Sector General Permit (MSGP) or the TPDES Construction General permit (CGP); and
- other similar occasional incidental non-storm water discharges, unless the TCEQ develops permits or regulations addressing these discharges.

The City of Sugar Land has not identified any of these discharges as significant contributors of pollution to the City's MS4. Therefore, these discharges will not be specifically addressed in the City's SWMP. However, in order to manage the release of potential pollutants from these discharges, the City will review current policies and procedures to minimize water quality impacts throughout the community. If in the future the above-referenced discharges prove to be a significant contributor of pollution to the MS4, the SWMP will be revised to include BMPs for those discharges.

4.4 DISCUSSION OF ACTIVE STORMWATER PROGRAMS

The City of Sugar Land currently implements a variety of illicit discharge and detection programs to identify sources of stormwater pollution throughout the community.

4.4.1 Stormwater Quality Education Materials

In order to prevent pollution within our waterways and educate residents on the effects their actions may have on the environment, the City of Sugar Land has developed a variety of educational materials and has obtained numerous educational resources from the TCEQ, the EPA, the Houston-Galveston Area Council (H-GAC), and other MS4 communities throughout the United States. This program is further discussed in Section 2.3.1.

4.4.2 Storm Sewer Mapping

The City of Sugar Land has developed a GIS work plan and is currently in the process of developing a map of the storm drainage system to show the waters of the U.S. and the location of storm sewer pipes, ditches, and other conveyances owned by the City. The map will also detail the locations of major outfalls to the waters of the U.S. These map features include:

- All stormwater discharge points 24 inches or larger from City owned or maintained drainage systems; and
- An initial program focus within the city limits with a shifted focus to areas within the City's ETJ once the initial map has been completed.

The Public Works and Utilities Departments have developed a GIS work plan that details a phased building of the public infrastructure system (water and wastewater systems, pumping facilities, storm sewer systems, roadway and sidewalk systems, street lighting, drainage ditches, basins, etc.). Completion of the Public Works and Utilities GIS project will provide graphic representations of all infrastructures within the city limits. In order to obtain source information for the development of the storm sewer map, the City utilizes the construction as-built drawings which directly reflect the infrastructure installed throughout the City. Storm sewer information for new developments is acquired directly from the construction developers.

An up-to-date storm sewer map is crucial in detecting and removing illicit sewer connections and thereby eliminating illicit discharges. The City currently requires developers to provide GIS-compatible electronic files of commercial and residential development drawings. Once acquired, these files are integrated into a City drainage system map. Outfall locations are visually

inspected and verified by field crews, and ongoing field verification may be necessary to keep the map up-to-date. In the future, updates will be incorporated into the City's work order system, and as work on the storm sewer system is completed, the information will be integrated into the GIS system. Additional City drainage features located in areas outside the coverage of the developer-provided drawings will be identified and located by field surveying or GPS and included on the drainage system map. The Public Works and Utilities Departments will develop a series of policies and procedures to ensure that the map is updated to ensure program accuracy.

The completion of the Public Works and Utilities GIS work plan will provide the City with a comprehensive layout of all public infrastructure networks. The City will continue to evaluate the GIS system to determine if additional information is needed to better serve the purposes of the SWMP. It is estimated that the GIS project will be completed by the end of Permit Year 4. Funds have been requested to provide updates to the system and to scan construction plans on an annual basis. Future funding will be requested to complete the development of all infrastructures within the City's ETJ and to integrate the AS/400 work order system data into GIS, which will attach a considerable amount of historical information to specific locations and appurtenances.

Measurable Goals:

- Evaluate the GIS work plan to determine if additional information is needed to better manage stormwater quality.
- Continue to complete data capture of all infrastructure within the city limits.
- Develop policies and procedures to ensure that the GIS system is updated to ensure program accuracy.
- Annually review program requirements to ensure that developers are providing GIS-compatible electronic files to properly reflect the most up-to-date file formats.

Evaluation:

- Complete data capture for infrastructure located within the City of Sugar Land.
- Ensure that annual updates are performed to ensure program accuracy and compatibility.
- Report the percentage of public infrastructure mapping completed during each permit year.

4.4.3 Household Recycling Program

The City of Sugar Land and KSLB, in conjunction with Fort Bend County, conduct annual neighborhood collections of latex paint and consumer electronics. The purpose of these collection events is to provide convenient drop-off locations for residents to dispose of recyclable materials. Residents who arrive with unacceptable items are directed to the Fort Bend County Recycling and Household Hazardous Waste (HHW) Collection Center in Rosenberg, located approximately ten miles south of Sugar Land. Historically, the City has coordinated with Fort Bend County staff to ensure facility operation during the neighborhood collection events in order to encourage residents to properly dispose of their wastes.

In addition to sponsoring these neighborhood collection events, the City publicizes the Fort Bend Recycling and HHW Center through a variety of avenues including informational brochures, magnets, and residential telephone inquiries and encourages residents to dispose of their HHW and recyclables at the facility. Items accepted at this facility (year-round) include batteries, motor oil, oil filters, latex paint, antifreeze, transmission oil, power steering fluid, flammables, caustics, toxics, cooking oil, consumer electronics, and other recyclables and HHW wastes.

Measurable Goals:

- Continue to sponsor at least one neighborhood latex paint or electronics collection event each year.
- Assess the feasibility of sponsoring a HHW collection event within the City.
- Continue to publicize Fort Bend County's Recycling and HHW Collection Center through the City website, municipal television station, printed educational materials, and the *Sugar Land Today* community newsletter.
- Compile and distribute a master list of recycling options throughout the community.

Evaluation:

- Track the number of individuals attending the neighborhood collection events.
- Report the volume of material collected at the neighborhood collection events.
- Track the number of Sugar Land residents who visit the Fort Bend County Recycling and HHW Collection Center.
- Compile the type and quantity of educational outreach materials distributed to the community to promote the program.

4.5 DISCUSSION OF SCHEDULED BEST MANAGEMENT PRACTICES

In addition to the programs the City is currently implementing, we have selected several additional programs to implement over the course of the permit period.

4.5.1 Illicit Discharge Ordinance

The City of Sugar Land will develop and adopt an ordinance to prohibit and eliminate illicit discharges to the MS4. The Public Works and Code Enforcement Departments will work together to ensure ordinance compliance throughout the community. The ordinance will prohibit illicit discharges and connections, all non-stormwater discharges that significantly contribute pollutants to the MS4, and illegal dumping. It will include appropriate enforcement procedures and actions. In addition, the ordinance will establish the legal authority to carry out inspection and monitoring procedures that may be necessary to ensure compliance.

Measurable Goals:

- Evaluate existing ordinances that may require modification.
- Develop a draft ordinance and modify existing ordinances as needed.
- Conduct public review proceedings in accordance with state and local public notice requirements.
- Present an ordinance to City Council for adoption.
- Adoption of an ordinance by City Council.
- Implement an ordinance.
- Educate and inform the public of the ordinance adoption.

Evaluation:

- Adoption of Illicit Discharge ordinance.
- Report the number of ordinance violations occurring each year, and annually compare this data to assess ordinance effectiveness.
- Compile the type and distribution techniques associated with educational outreach materials utilized to publicize the adoption of the ordinance.

4.5.2 Stormwater Hotline

The City of Sugar Land will develop procedures for receipt and consideration of information submitted by the public regarding the implementation of the SWMP, illicit discharges, including illegal dumping and construction site violations, and additional environmental issues that may affect the community. This program is further discussed in Section 3.4.2.

4.5.3 Detection and Elimination Program

A range of options is available to address illicit discharge detection and elimination. The City will develop a program to utilize a combination of complaint-driven investigations and proactive detection and elimination procedures to identify illicit discharges. In order to detect illicit discharges throughout the community, the City will conduct community-wide outfall screenings during dry-weather conditions, investigate any identifiable dry-weather flows in order to isolate the source of the discharge, and coordinate with the responsible party to eliminate the discharge.

Dry-weather screening is weather-dependant, and may be difficult in some locations due to submerged outfalls. However, the City has performed a series of dry weather screenings throughout the community in order to develop baseline data for illicit discharge comparisons.

In addition to developing a detection and elimination inspection program, the City currently inspects the municipal infrastructure for health and construction-related issues of concern and responds to citizen requests regarding streets, drainage, and traffic. The City and contract crews are responsible for the operation, maintenance and repair of wastewater collection lines, manholes, and appurtenances. Crews make all necessary repairs to lines transporting wastewater

from the customer to the treatment plant. These repairs include unstopping City wastewater transmission lines, investigating stoppages on homeowner's private sewer lines, preventive maintenance line cleaning and manhole repairs to ensure that wastewater is transported from the customers' sewer service to wastewater lift stations and eventually to a waste treatment facility with minimal disruption. In addition, the Utilities Department also assesses the operation and maintenance of grease traps at businesses throughout the City at least twice a year.

Measurable Goals:

- Establish baseline measures for illicit discharge comparisons.
- Continue to perform operation, maintenance, and inspection procedures on wastewater transmission lines throughout the City.
- Continue to perform grease trap inspections at businesses throughout the City.
- Develop and implement a screening, inspection, and detection program to identify illicit discharges.
- Develop illicit discharge inspection protocols and identify major/priority outfalls.

Evaluation:

- Track the number of screenings and inspections performed annually.
- Record the miles of drainage ditches and the number of outfalls that are monitored annually.
- Report the number of complaint driven requests for infrastructure inspections.
- Track the miles of wastewater transmission lines that are inspected annually.
- Compile a list of the businesses that operate grease traps in the City and the dates on which the grease traps are inspected by City staff.

4.5.4 Septic Systems

Sugar Land will evaluate the need to implement a septic system inspection program. As part of this program, Sugar Land will require and facilitate the repair of septic systems that are failing to treat wastewater properly. The City of Sugar Land only has a handful of remaining septic systems within the City limits, and the City currently has an ordinance in place that prohibits the installation of new septic systems within the corporate city limits. For new developments outside the city limits but within the City's extraterritorial jurisdiction, the County allows septic systems to be installed only on properties that are larger than one acre. A septic system inspection program will facilitate the improvement of failing septic systems and reduce potential contamination of surface and groundwater, including water supply wells. Through program development, the City will assess the need to field screen areas for indications of failing systems and the need for system modifications in order to ensure proper treatment.

Measurable Goals:

- Evaluate the need to implement a septic system inspection program.
- Develop a septic system inspection program, if deemed necessary.
- Respond to 100 percent of complaints regarding septic systems.

Evaluation:

- Report the number of septic systems identified within the city limits.
- Track the number of septic system investigations/complaints.

4.5.5 Database of Businesses

Sugar Land maintains a database of businesses within the municipality. This database will assist in the distribution of public education materials and in identifying those businesses that may be contributing illicit discharges to the MS4 system. With this database, staff will be able to categorize businesses, more directly focus educational efforts, and prioritize commercial and industrial education and enforcement efforts for illicit discharges.

Measurable Goals:

- Develop, modify, and update the database of businesses.

Evaluation:

- Perform annual updates of the information within the database.

Table 4 - 1 ILLICIT DISCHARGE DETECTION AND ELIMINATION							
Best Management Practice	**Measurable Goals**	**Permit Year (Aug. to Aug.)**					**Key Departments/Divisions**
		1	**2**	**3**	**4**	**5**	
Stormwater Quality Education Materials	See Table 2 - 1 Public Education and Outreach						
Storm Sewer Mapping	- Evaluate the GIS work plan to determine if additional information is needed to better manage stormwater quality.						Public Works/Utilities/Information Technology
	- Continue to complete data capture of all infrastructure within the city limits.						Public Works/Utilities/Information Technology
	- Develop policies and procedures to ensure that the GIS system is updated to ensure program accuracy.						Public Works/Utilities/Information Technology
	- Annually review program requirements to ensure developers are providing GIS-compatible electronic files to properly reflect the most up-to-date file formats.						Public Works/Utilities/Information Technology
Household Recycling Program	- Continue to sponsor at least one neighborhood latex paint or electronics collection event each year.						Public Works
	- Assess the feasibility of sponsoring a HHW collection event within the City.						Public Works
	- Continue to publicize Fort Bend County's Recycling and HHW Collection Center						Public Works/Communications
	- Compile and distribute a master list of recycling options throughout the community.						Public Works/Communications
Illicit Discharge Ordinance	- Evaluate existing ordinances that may require modification.						Public Works/Legal/Code Enforcement
	- Develop a draft ordinance and modify existing ordinances as needed.						Public Works/Legal/Code Enforcement
	- Conduct public review proceedings in accordance with state and local public notice requirements.						Public Works/Legal
	- Present an ordinance to City Council for adoption.						Public Works
	- Adoption of an ordinance by City Council.						Public Works
	- Educate and inform the public of the ordinance adoption.						Public Works/Code Enforcement
	- Implement an ordinance.						Public Works/Code Enforcement

Table 4 - 1 ILLICIT DISCHARGE DETECTION AND ELIMINATION							
Best Management Practice	**Measurable Goals**	**Permit Year (Aug. to Aug.)**					**Key Departments/Divisions**
		1	**2**	**3**	**4**	**5**	
Stormwater Hotline	See Table 2 - 1 Public Education and Outreach						
Detection and Elimination Program	- Establish baseline measures for illicit discharge comparisons.						Public Works
	- Continue to perform operation, maintenance, and inspection procedures on wastewater transmission lines throughout the City.						Utilities
	- Continue to perform grease trap inspections at businesses throughout the City.						Utilities
	- Develop and implement a screening, inspection, and detection program to identify illicit discharges.						Public Works
	- Develop illicit discharge inspection protocols and identify major/priority outfalls.						Public Works
Septic Systems	- Evaluate the need to implement a septic system inspection program.						Public Works/Utilities
	- Respond to 100% of complaints regarding septic systems.						Utilities
	- Develop a septic system inspection program, if deemed necessary.						Public Works/Utilities
Database of Businesses	- Develop, modify, and update the database of businesses.						Public Works/Utilities/Treasury/ Economic Development

Begins Permit Year 1	Begins Permit Year 2	Begins Permit Year 3	Begins Permit Year 4	Begins Permit Year 5

SECTION 5 – MCM 4: CONSTRUCTION SITE STORMWATER RUNOFF CONTROL

5.0 OVERVIEW

Construction site stormwater runoff control measures are designed to prevent soil and construction debris from entering the MS4 system from construction sites. During construction activities, vegetation and topsoil are stripped away, making the area especially vulnerable to erosion, and the activities performed on construction sites usually disturb a large amount of land and generate large amounts of waste. This process has generally been found to lead to high levels of sediment, phosphorus, nitrogen, pesticides, petroleum derivatives, construction chemicals, and solid wastes in receiving streams nationwide.

5.1 FEDERAL REGULATORY REQUIREMENTS

40 CFR 122.34 (b)(4) states that the MS4 operator must develop, implement and enforce a program to reduce pollutants in any storm water runoff to your small MS4 from construction activities that result in a land disturbance of greater than or equal to 1 acre. Reduction of storm water discharges from construction activity disturbing less than 1 acre must be included in your program if that construction activity is part of a larger common plan of development or sale that would disturb 1 acre or more. If the NPDES permitting authority waives requirements for storm water discharges associated with small construction activity in accordance with 40 CFR Sec. 122.26(b)(15)(i), you are not required to develop, implement, and/or enforce a program to reduce pollutant discharges from such sites.

Your program must include the development and implementation of, at a minimum:

- An ordinance or other regulatory mechanism to require erosion and sediment controls, as well as sanctions to ensure compliance, to the extent allowable under State, Tribal, or local law;
- Requirements for construction site operators to implement appropriate erosion and sediment control best management practices;
- Requirements for construction site operators to control waste such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste at the construction site that may cause adverse impacts to water quality;
- Procedures for site plan review that incorporate consideration of potential water quality impacts;
- Procedures for receipt and consideration of information submitted by the public; and
- Procedures for site inspection and enforcement of control measures.

5.2 TPDES PHASE II PERMIT REQUIREMENTS

Construction Site Storm Water Runoff Control

The MS4 operator, to the extent allowable under State and local law, must develop, implement, and enforce a program to reduce pollutants in any storm water runoff to the small MS4 from construction activities that result in a land disturbance of greater than or equal to the small one acre or if that construction activity is part of a larger common plan of development or sale that would disturb one acre or more of land. The MS4 operator is not required to develop, implement, and/or enforce a program to reduce pollutant discharges from sites where the construction site operator has obtained a waiver from permit requirements under NPDES or TPDES construction permitting requirements based on a low potential for erosion.

(a) The program must include the development and implementation of, at a minimum, an ordinance or other regulatory mechanism to require erosion and sediment controls, as well as sanctions to ensure compliance, to the extent allowable under state and local law.

(b) Requirements for construction site contractors to, at a minimum:

  (1) implement appropriate erosion and sediment control BMPs; and

  (2) control waste such as discarded building materials, concrete truck washout water, chemicals, litter, and sanitary waste at the construction site that may cause adverse impacts to water quality.

(c) The MS4 operator must develop procedures for:

  (1) site plan review which incorporate consideration of potential water quality impacts;

  (2) receipt and consideration of information submitted by the public; and

  (3) site inspection and enforcement of control measures to the extent allowable under state and local law.

5.3 DISCUSSION OF ACTIVE STORMWATER PROGRAMS

The City of Sugar Land currently utilizes a variety of construction site stormwater runoff control measures to monitor and reduce pollutants from construction sites throughout the community.

5.3.1 Stormwater Quality Educational Materials

In order to prevent pollution within our waterways and educate the community on the effects their actions may have on the environment, the City of Sugar Land has developed a variety of educational materials and has obtained numerous educational resources from the TCEQ, the

EPA, the Houston-Galveston Area Council (H-GAC), and other MS4 communities throughout the United States. This program is further discussed in Section 2.3.1.

5.3.2 Municipal Website

The City of Sugar Land will utilize the municipal website to inform the general public and potential construction site operators of the state TPDES Construction General Permit TXR150000 requirements and the City of Sugar Land policies and procedures relating to construction site stormwater runoff control. This program is further discussed in Section 2.3.2.

5.4 DISCUSSION OF SCHEDULED BEST MANAGEMENT PRACTICES

In addition to the programs the City is currently implementing, several additional programs have been selected to implement over the course of the permit period.

5.4.1 Construction Site Runoff Control Ordinance

The City of Sugar Land will develop and adopt an ordinance to require construction site operators to utilize erosion and sediment control devices during construction-related activities, as well as sanctions to ensure compliance. The ordinance will mirror the requirements of the TCEQ Construction General Permit TXR150000 and mandate that construction site operators install, maintain, and properly dispose of erosion and sediment controls.

Measurable Goals:

- Evaluate existing ordinances that may require modification.
- Develop a draft ordinance and modify existing ordinances as needed.
- Conduct public review proceedings in accordance with state and local public notice requirements.
- Present an ordinance to City Council for adoption.
- Adoption of an ordinance by Council.
- Implement an ordinance.
- Educate and inform the public of the ordinance adoption.

Evaluation:

- Adoption of Construction Site Runoff Control ordinance.
- Compile the type and distribution techniques associated with educational outreach materials utilized to publicize the adoption of the ordinance.

5.4.2 Site Plan Review Program

Existing procedures require site plan review and approval by the Development Review Committee (DRC) prior to the initiation of construction activities within the City of Sugar Land.

City staff will evaluate the current site plan review process and develop procedures for a site plan review program that incorporates the consideration of potential water quality effects from construction activities. The program will include the review of Stormwater Pollution Prevention Plans (SWPPP) and TCEQ permit documentation in order to ensure permit compliance. During the review process, staff will also consider the nature of construction, the topography of the site, soil characteristics of the site, and the condition of the receiving stream. Forms, checklists, and a standard format for the submission of plans will also be developed or revised.

Measurable Goals:

- Evaluate the DRC review process and develop/modify policies and procedures, as needed, to include pollution prevention assessments.
- Develop pollution prevention checklists.
- Review submitted plans.

Evaluation:

- Track the number of plans submitted each year to the DRC.
- Record the number of plans reviewed each year and compare this data with the number of plans submitted.

5.4.3 Construction Site Inspection Program

The City of Sugar Land will develop procedures for a construction site inspection and enforcement program in order to reduce stormwater runoff pollutants to the MS4. City staff will perform construction site inspections on municipal and non-municipal construction activities throughout the City. Responsibility for program implementation will be assigned, and the appropriate personnel will be trained to perform the tasks specified in the program. All construction site inspections will be performed in accordance with the developed procedures, and enforcement proceedings will be administered in accordance with the adopted construction site runoff control ordinance and construction waste control ordinance.

Measurable Goals:

- Develop construction site inspection procedures and inspection forms.
- Train applicable employees to perform construction site inspections.
- Perform enforcement proceedings in accordance with the adopted construction site ordinances.
- Resolve all noncompliance issues in a timely manner; number of days to be determined during program development.

Evaluation:

- Track the number of employee training hours and report the number of employees trained.

- Report the number of construction site inspections performed each year.
- Document the number of non-municipal construction activities that occur within the City's jurisdiction (as noticed to the City by the construction operator).
- Document the number of warnings/citations given each year for issues of noncompliance, and annually compare this data to assess ordinance effectiveness.

5.4.4 Stormwater Hotline

The City of Sugar Land will develop procedures for receipt and consideration of information submitted by the public regarding the implementation of the SWMP, illicit discharges, including illegal dumping and construction site violations, and additional environmental issues that may affect the community. This program is further discussed in Section 3.4.2.

5.4.5 Construction Site Waste Control Ordinance

The City of Sugar Land will develop and adopt an ordinance to require construction site operators to control and dispose of on-site waste materials such as discarded building materials, concrete truck washout water, chemicals, litter, and sanitary waste at the construction site that may cause adverse impacts to water quality, as well as sanctions to ensure compliance. The ordinance will mirror the City's solid waste ordinance and mandate that construction site operators employ solid waste haulers who are licensed by the City of Sugar Land.

Measurable Goals:

- Evaluate existing ordinances that may require modification.
- Develop a draft ordinance and modify existing ordinances as needed.
- Conduct public review proceedings in accordance with state and local public notice requirements.
- Present an ordinance to City Council for adoption.
- Adoption of an ordinance by Council.
- Implement an ordinance.
- Educate and inform the public of the ordinance adoption.

Evaluation:

- Adoption of Construction Site Waste Control ordinance.
- Compile the type and distribution techniques associated with educational outreach materials utilized to publicize the adoption of the ordinance.

Table 5 - 1 CONSTRUCTION SITE STORMWATER RUNOFF CONTROL							
Best Management Practice	**Measurable Goals**	**Permit Year (Aug. to Aug.)**					**Key Departments/Divisions**
		1	**2**	**3**	**4**	**5**	
Stormwater Quality Education Materials	See Table 2 - 1 Public Education and Outreach						
Municipal Website	See Table 2 - 1 Public Education and Outreach						
Construction Site Runoff Control Ordinance	- Evaluate existing ordinances that may require modification.						Public Works/Legal/Code Enforcement
	- Develop a draft ordinance and modify existing ordinances as needed.						Public Works/Legal/Code Enforcement
	- Conduct public review proceedings in accordance with state and local public notice requirements.						Public Works/Legal
	- Present an ordinance to City Council for adoption.						Public Works
	- Adoption of an ordinance by City Council.						Public Works
	- Educate and inform the public of the ordinance adoption.						Public Works/Code Enforcement
	- Implement an ordinance.						Public Works/Code Enforcement
Site Plan Review Program	- Evaluate the DRC review process and develop/modify policies and procedures, as needed, to include pollution prevention assessments.						Public Works/Utilities/Engineering/ Planning
	- Develop pollution prevention checklists.						Public Works/Utilities/Engineering/ Planning
	- Review submitted plans.						Public Works/Utilities/Engineering/ Planning

Table 5 - 1 CONSTRUCTION SITE STORMWATER RUNOFF CONTROL							
Best Management Practice	**Measurable Goals**	**Permit Year (Aug. to Aug.)**					**Key Departments/Divisions**
		1	**2**	**3**	**4**	**5**	
Construction Site Inspection Program	- Develop construction site inspection procedures and inspection forms.						Public Works/Code Enforcement
	- Train applicable employees to perform construction site inspections.						Public Works/Code Enforcement
	- Perform enforcement proceedings in accordance with the adopted construction site ordinances.						Public Works/Code Enforcement/Legal/ Municipal Court
	- Resolve all noncompliance issues in a timely manner, number of days to be determined during program development.						Public Works/Code Enforcement/Legal/ Municipal Court
Stormwater Hotline	See Table 3 - 1 Public Involvement and Participation						
Construction Site Waste Control Ordinance	- Evaluate existing ordinances that may require modification.						Public Works/Legal/Code Enforcement
	- Develop a draft ordinance and modify existing ordinances as needed.						Public Works/Legal/Code Enforcement
	- Conduct public review proceedings in accordance with state and local public notice requirements.						Public Works/Legal
	- Present an ordinance to City Council for adoption.						Public Works
	- Adoption of an ordinance by City Council						Public Works
	- Educate and inform the public of the ordinance adoption.						Public Works/Code Enforcement
	- Implement an ordinance.						Public Works/Code Enforcement

Begins Permit Year 1	Begins Permit Year 2	Begins Permit Year 3	Begins Permit Year 4	Begins Permit Year 5

SECTION 6 – MCM 5: POST-CONSTRUCTION STORMWATER MANAGEMENT IN NEW DEVELOPMENT AND REDEVELOPMENT

6.0 OVERVIEW

Post-construction stormwater management in new development and redevelopment focuses on the implementation of controls to maintain good water quality conditions after an area has been developed. New development can also have a significant effect on water quality because during the course of development, natural landscapes are often replaced by impermeable roads, parking lots, sidewalks and other paved surfaces that lead to increases in both the volume of stormwater runoff and the accompanying pollutants that reach local water bodies.

The MS4s are required to develop, implement, and enforce a program to address stormwater runoff from new development and redevelopment projects that disturb greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale that discharge to the small MS4. The program must ensure that controls are in place to prevent or minimize water quality impacts.

6.1 FEDERAL REGULATORY REQUIREMENTS

40 CFR 122.34 (b)(5) states that the MS4 must develop, implement and enforce a program to address storm water runoff from new development and redevelopment projects that disturb greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale, that discharge into your small MS4. Your program must ensure that controls are in place that would prevent or minimize water quality impacts.

The MS4 operator must:

- Develop and implement strategies which include a combination of structural and/or non-structural best management practices (BMPs) appropriate for your community;
- Use an ordinance or other regulatory mechanism to address post-construction runoff from new development and redevelopment projects to the extent allowable under State, Tribal or local law; and
- Ensure adequate long-term operation and maintenance of BMPs.

6.2 TPDES PHASE II PERMIT REQUIREMENTS

Post Construction Storm Water Management in New Development and Redevelopment

To the extent allowable under state and local law, the MS4 operator must develop, implement, and enforce a program to address storm water runoff from new development and redevelopment projects that disturb greater than or equal to one acre of land, including projects less than one acre that are part of a larger common plan of development or sale that will result in disturbance

of one or more acres, that discharge into the small MS4. The program must ensure that controls are in place that would prevent or minimize water quality impacts. The permittee shall:

(a) Develop and implement strategies which include a combination of structural and/or non-structural BMPs appropriate for the community;

(b) Use an ordinance or other regulatory mechanism to address post-construction runoff from new development and re-development projects to the extent allowable under state and local law; and

(c) Ensure adequate long-term operation and maintenance of BMPs.

6.3 DISCUSSION OF SCHEDULED STORMWATER PROGRAMS

In addition to the programs the City is currently implementing, we have selected several additional programs to implement over the course of the permit period.

6.3.1 Post-Construction Stormwater Management Development Codes

The City of Sugar Land will review and revise, if necessary, the City's Development Code in order to address stormwater runoff from new development and redevelopment activities that disturb greater than or equal to one acre of land, including those projects less than one acre that are part of a larger common plan of development or sale that will result in the disturbance of one or more acres of land. A development code specification relating to post-construction stormwater management will enable the City to guide, regulate, and control the design, construction, and maintenance of construction activity throughout the community. As an element of the review and revision process, specific BMPs may be established for particular watersheds. The code specifications will facilitate in the limitation of surface runoff volumes and the reduction of pollutants. In addition, developers will utilize the City's Development Code specifications as a reference document in the development and management of community-wide projects.

Measurable Goals:

- Evaluate existing development codes that may require modification.
- Develop draft development codes and modify existing development codes as needed.
- Conduct public review proceedings in accordance with state and local public notice requirements.
- Present the development codes to City Council for adoption.
- Adoption of the development codes by Council.
- Implement the development codes.
- Educate and inform the public of the development code adoption.

Evaluation:

- Adoption of post-construction stormwater management development codes.

- Compile the type and distribution techniques associated with educational outreach materials utilized to publicize the adoption of the codes.

6.3.2 Development Review Procedures

The City of Sugar Land Development Review Committee (DRC) meets on a weekly basis to review community plans of development. In order to reflect the adoption of a post-construction stormwater management development code requiring post-construction controls for new development and redevelopment, the development review procedures will be examined and revised, if necessary. In addition, the City will integrate post-construction stormwater quality requirements into our existing inspection programs, and in order to address stormwater quality issues throughout the development process, the DRC will incorporate the review of stormwater quality features into the plan review process.

Measurable Goals:

- Review and revise existing pollution prevention review procedures as needed.
- Implement updated procedures.
- Review submitted plans.

Evaluation:

- Track the number of plans submitted each year to the DRC.
- Record the number of plans reviewed each year and compare this data with the number of plans submitted.

6.3.3 Encouragement of Low Impact Stormwater Designs

The City of Sugar Land will examine and modify the development design criteria to allow and encourage low impact stormwater designs where these alternatives do not conflict with other code requirements. With these modifications, the City will actively support the use of development practices commonly referred to as low-impact design, conservation development, or open space development. These design alternatives include, but are not limited to:

- Low impact development;
- Narrower residential streets;
- Eliminating curb and gutters;
- Green parking;
- Alternative turnarounds;
- Alternative pavers;
- Buffer zones;
- Open space design; and
- Conservation easements.

These design alternatives strive to maintain pre-development stormwater quality conditions, so that downstream structural controls are not necessary. These alternatives may be compatible with master-planned communities and floodplain management, and some developers are considering these options in order to minimize the loss of buildable land to stormwater quality impoundments. City staff will cooperatively examine and modify the City's development design standards to incorporate the use of low impact stormwater designs into the plan review process and guidance manuals.

With these modifications, it will be imperative to educate and train City staff on the stormwater design standard revisions. Staff must be familiar with the design standards in order to ensure proposed projects meet all necessary stormwater requirements. Not only will City staff be trained on the design standard revisions, but developers and builders submitting development plans to the review committee will also receive educational material detailing the stormwater design standards and the options available to meet those standards.

Measurable Goals:

- Evaluate and modify design standards, as needed, to allow alternative low impact stormwater designs.
- Develop a program to encourage alternative low impact stormwater designs.
- Evaluate the possibility of providing cost incentives for the utilization of low impact stormwater development.

Evaluation:

- Record the number of low impact stormwater designs submitted for review each year.
- Utilize data from year one low impact design submittals as a baseline of reference for additional permit year submittals and annually increase these submittals.

6.3.4 Project Inspections

With revisions to the City's development design criteria and a post-construction stormwater management development code requiring developers and builders to address stormwater runoff from new development and redevelopment, City of Sugar Land inspectors will perform compliance inspections of completed projects. These inspections will ensure the proper construction of permanent stormwater structural controls as detailed in City-approved development plans. Installation inspections will be required prior to project completion in order to ensure proper installation of the control measures and to correct any potential defects in the structural controls. The proper construction of permanent controls is necessary for the success of the inspection and maintenance of the system. Inspectors will be trained on stormwater quality design criteria, and inspection forms and checklists for the inspection of permanent stormwater quality structural controls will be developed as needed.

Measurable Goals:

- Develop project inspection procedures and inspection forms.
- Train applicable employees to perform inspections.
- Perform compliance inspections upon project completion to ensure the proper development and implementation of structural controls.

Evaluation:

- Track the number of employee training hours, and report the number of employees trained.
- Report the number of completed projects and the number of corresponding compliance inspections performed each year.

6.3.5 Long-term Operation and Maintenance Program

The effectiveness of post-construction control measures depends upon the regular inspection and maintenance of stormwater control measures. The City of Sugar Land will develop an operation and maintenance program to integrate post-construction stormwater quality requirements into the plan review process. The City will revise the plan review process to require developers to submit plans and provisions for the long-term inspection and maintenance of any stormwater structural controls installed and implemented within their development in order to maintain stormwater quality.

Routine inspection and maintenance of stormwater structural controls assist in the identification and repair of problems associated with the system before the problems become serious. In order to ensure that proper operation and maintenance procedures are performed, the City will develop a process for permitting and inspecting the stormwater structural controls installed throughout the community, as referenced in the project inspection discussion.

Measurable Goals:

- Review and revise, if necessary, the plan review process to ensure long-term inspection and maintenance of structural controls.
- Perform annual compliance inspections of structural controls.

Evaluation:

- Report the number of compliance inspections performed each year.
- Document the occurrence of issues of noncompliance, and annually compare this data to assess program effectiveness.

6.3.6 Evaluation of Regional Detention Ponds

The City of Sugar Land will evaluate existing and proposed regional detention ponds for potential modifications that may incorporate stormwater quality features. The City will also evaluate the need for an ordinance or regulatory mechanism requiring the development and maintenance of detention ponds and stormwater control measures. During this evaluation, existing ponds will also be assessed for retrofit feasibility. By retrofitting existing detention ponds, a variety of factors may be positively affected. The retrofit may improve water quality, protect downstream channels, or reduce flooding. The ability to use regional drainage features for stormwater quality treatment may increase the effectiveness of stormwater management on new development and redevelopment projects throughout the community.

Measurable Goals:

- Evaluate the need for an ordinance or regulatory mechanism requiring the maintenance of detention ponds.
- Adopt an ordinance, if deemed necessary.
- Revise pollution prevention design standards to include stormwater quality considerations in the design of regional detention ponds.
- Evaluate the need for a program to monitor detention ponds.
- Implement a detention pond monitoring program, if deemed necessary.

Evaluation:

- Adoption of ordinance.

Table 6 - 1 POST-CONSTRUCTION STORMWATER MANAGEMENT IN NEW DEVELOPMENT AND REDEVELOPMENT							
Best Management Practice	**Measurable Goals**	**Permit Year (Aug. to Aug.)**					**Key Departments/Divisions**
		1	**2**	**3**	**4**	**5**	
Post-Construction Stormwater Management Development Codes	- Evaluate existing development codes that may require modification.						Public Works/Engineering/Planning/ Code Enforcement
	- Develop draft codes and modify existing development codes as needed.						Public Works/Engineering/Planning/ Code Enforcement
	- Conduct public review proceedings in accordance with state and local public notice requirements.						Public Works/Engineering/Planning/ Code Enforcement
	- Present the development codes to City Council for adoption.						Public Works/Engineering/Planning/ Code Enforcement
	- Adoption of the development codes by City Council.						Public Works/Engineering/Planning/ Code Enforcement
	- Implement the development codes.						Public Works/Engineering/Planning/ Code Enforcement
	- Educate and inform the public of the development code adoption.						Public Works/Engineering/Planning/ Code Enforcement
Post-Construction Development Review Procedures	- Review and revise existing pollution prevention review procedures as needed.						Public Works/Utilities/Engineering/ Planning
	- Implement updated procedures.						Public Works/Utilities/Engineering/ Planning
	- Review submitted plans.						Public Works/Utilities/Engineering/ Planning
Encouragement of Low Impact Stormwater Designs	- Evaluate and modify design standards, as needed, to allow alternative low impact stormwater designs.						Public Works/Engineering/Planning/ Code Enforcement
	- Develop a program to encourage alternative low impact stormwater designs.						Public Works/Engineering/Planning/ Code Enforcement
	- Evaluate the possibility of providing cost incentives for the utilization of low impact stormwater development.						Public Works/Engineering/Planning/ Code Enforcement/Treasury

Table 6 - 1 POST-CONSTRUCTION STORMWATER MANAGEMENT IN NEW DEVELOPMENT AND REDEVELOPMENT							
Best Management Practice	**Measurable Goals**	**Permit Year (Aug. to Aug.)**					**Key Departments/Divisions**
		1	**2**	**3**	**4**	**5**	
Project Inspections	- Develop project inspection procedures and inspection forms.						Public Works/Engineering/Planning/ Code Enforcement
	- Train applicable employees to perform inspections.						Public Works/Engineering/Code Enforcement
	- Perform compliance inspections upon project completion to ensure the proper development and implementation of structural controls.						Public Works/Engineering/Code Enforcement
Long-term Operation and Maintenance Program	- Review existing development plans and procedures to ensure long-term inspection and maintenance of structural controls, and revise them as necessary.						Public Works/Engineering/Planning/ Code Enforcement
	- Perform annual compliance inspections of structural controls.						Public Works/Engineering/Code Enforcement
Evaluation of Regional Detention Ponds	- Evaluate the need for an ordinance or regulatory mechanism requiring the maintenance of detention ponds.						Public Works/Engineering/Planning/ Code Enforcement
	- Adopt an ordinance, if deemed necessary.						Public Works/Engineering/Planning/ Code Enforcement/ Legal
	- Revise pollution prevention design standards to include stormwater quality considerations in the design of regional detention ponds.						Public Works/Engineering/Planning/ Code Enforcement
	- Evaluate the need for a program to monitor detention ponds.						Public Works/Engineering/Planning/ Code Enforcement
	- Implement a detention pond monitoring program, if deemed necessary.						Public Works/Code Enforcement

Begins Permit Year 1	Begins Permit Year 2	Begins Permit Year 3	Begins Permit Year 4	Begins Permit Year 5

SECTION 7 – MCM 6: POLLUTION PREVENTION/GOOD HOUSEKEEPING FOR MUNICIPAL OPERATIONS

7.0 OVERVIEW

Municipalities conduct a variety of activities throughout their daily operations which have the potential to affect water quality throughout the community. With the adoption and implementation of stormwater management policies and procedures, the City of Sugar Land will protect stormwater quality and continue to deliver public services at the present service levels. A variety of municipal operations, as referenced in Figure 1, will be affected by stormwater management policies and procedures. These municipal operations include, but are not limited to, parks maintenance, open space management, road and rights-of-way maintenance, water/wastewater utilities, fleet and building maintenance, city construction projects, and stormwater system maintenance.

7.1 FEDERAL REGULATORY REQUIREMENTS

40 CFR 122.34 (b)(6) states that the MS4 operator must develop and implement an operation and maintenance program that includes a training component and has the ultimate goal of preventing or reducing pollutant runoff from municipal operations. Using training materials that are available from EPA, your State, Tribe, or other organizations, your program must include employee training to prevent and reduce storm water pollution from activities such as park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and storm water system maintenance.

7.2 TPDES PHASE II PERMIT REQUIREMENTS

Pollution Prevention/Good Housekeeping for Municipal Operations

A section within the SWMP must be developed to establish an operation and maintenance program, including an employee training component, that has the ultimate goal of preventing or reducing pollutant runoff from municipal operations.

(a) Good Housekeeping and Best Management Practices (BMPs)

Housekeeping measures and BMPs (which may include new or existing structural or non-structural controls) must be identified and either continued or implemented with the goal of preventing or reducing pollutant runoff from municipal operations. Examples of municipal operations and municipally owned areas include, but are not limited to:

(1) park and open space maintenance;
(2) street, road, or highway maintenance;
(3) fleet and building maintenance;
(4) storm water system maintenance;
(5) new construction and land disturbances;

(6) municipal parking lots;
(7) vehicle and equipment maintenance and storage yards;
(8) waste transfer stations; and
(9) salt/sand storage locations.

(b) Training

A training program must be developed for all employees responsible for municipal operations subject to the pollution prevention/good housekeeping program. The training program must include training materials directed at preventing and reducing storm water pollution from municipal operations. Materials may be developed, or obtained from the EPA, states, or other organizations and sources. Examples or descriptions of training materials being used must be included in the SWMP.

(c) Structural Control Maintenance

If BMPs include structural controls, maintenance of the controls must be performed at a frequency determined by the MS4 operator and consistent with maintaining the effectiveness of the BMP. The SWMP must list all of the following:

(1) maintenance activities;
(2) maintenance schedules; and
(3) long-term inspection procedures for controls used to reduce floatables and other pollutants.

(d) Disposal of Waste

Waste removed from the small MS4 and waste that is collected as a result of maintenance of storm water structural controls must be properly disposed. A section within the SWMP must be developed to include procedures for the proper disposal of waste, including:

(1) dredge spoil;
(2) accumulated sediments; and
(3) floatables.

(e) Municipal Operations and Industrial Activities

The SWMP must include a list of all:

(1) municipal operations that are subject to the operation, maintenance, or training program developed under the conditions of this section; and

(2) municipally owned or operated industrial activities that are subject to TPDES industrial storm water regulations.

7.3 DISCUSSION OF ACTIVE STORMWATER PROGRAMS

The City of Sugar Land currently performs street sweeping activities throughout the community in order to keep our streets clean and reduce the amount of pollutants reaching our waterways.

7.3.1 Street Sweeping

Street sweeping can capture a substantial amount of solids and pollutants from street surfaces before they are washed into the stormwater drainage system and discharged into local waterways. The City of Sugar Land will evaluate the frequency of street sweeping and prioritize areas by pollution potential. The City will then determine whether increased street sweeping would be beneficial to its stormwater management effort.

The City of Sugar Land currently budgets approximately $146,000 per year to fund 40 hours per month of street sweeping. The City's street sweeping program targets boulevards and major intersections along Highway 6, Highway 90, and Eldridge Road. Currently, the City does not sweep in front of residential homes unless the home is located on a major roadway.

The City will evaluate the financial resources available to increase contracted services for street sweeping or to purchase a street sweeper. The City does not currently have a street sweeper in its fleet. If the City deems it necessary to purchase a sweeper, capital costs for a conventional sweeper would range from $100,000 to $160,000. A newer technology sweeper would cost approximately $180,000. In addition, operation and maintenance costs are approximately $30 per curb mile for conventional sweepers and $15 per curb mile for newer technology sweepers. The average cost for street cleaning is estimated at $68 per curb mile at 11 curb miles per day.

Materials swept from streets have a significant pollution potential and must be disposed of properly. Personnel operating street-sweeping equipment will be trained in proper collection, handling, and disposal methods. Most street sweeping debris can be disposed of in a Type II landfill, with costs ranging from $10 to $20 per cubic yard. If street sweeping is contracted out, the estimated cost for capital investment, operation and maintenance, and disposal may range from $130 to $150 per curb mile.

Measurable Goals:

- Review current operations and procedures, and prioritize locations based on pollution potential.
- Determine whether increased street sweeping would be beneficial to the stormwater management effort.
- Evaluate the financial resources available to increase contracted services for street sweeping or to purchase a street sweeper.
- Implement program changes as needed.

Evaluation:

- Track the volume of litter collected from street sweeping activities.
- Report the number of hours spent sweeping the streets of Sugar Land.

7.4 DISCUSSION OF SCHEDULED BEST MANAGEMENT PRACTICES

In addition to the programs the City is currently implementing, we have selected several additional programs to implement over the course of the permit period.

7.4.1 Municipal Operations and Facility Survey

Sugar Land is a full-service municipality providing the highest quality of services to meet the needs of its citizens. In order to provide these services, the City of Sugar Land operates and maintains a variety of facilities throughout the community which have the potential to affect stormwater quality. Please refer to Figure 1 for a summary of municipal facilities. In order to assess the need for pollution prevention policies and procedures at these facilities, the City will perform a survey of each facility to determine the nature of activities performed at the facility, the appropriate stormwater management BMPs, and a means of BMP implementation.

By reviewing the facility operation and maintenance activities, the municipal operations and facility survey will identify the need for stormwater management BMPs at each facility and provide an implementation plan for the effective management of the stormwater BMPs. The information collected during the survey will serve as a baseline for BMP development and implementation at each facility, and staff will use this information in the development of a facility inspection program.

Measurable Goals:

- Perform a municipal operations and facility survey.
- Develop policies and procedures to implement stormwater BMPs as deemed necessary in the municipal operations survey.

Evaluation:

- Complete the municipal operations and facility survey.
- Report the number of facilities surveyed and compare the number to the total number of City facilities.
- Track the development and implementation of stormwater BMPs to make sure all facilities are effectively utilizing stormwater management BMPs.

7.4.2 Facility Inspection Program

Inspections facilitate early response to potential problems. With the completion of the municipal operations survey, a series of stormwater management BMPs will be identified for each facility

and a method will be developed for BMP implementation. In order to properly implement and maintain the BMPs at each facility, the City will formalize municipal facility inspection procedures. Staff will develop a site-specific checklist of BMPs to be inspected, a series of inspection procedures, the assignment of facility inspection responsibilities, and a procedure for the documentation of response. Staff will utilize these procedures to perform quarterly and annual inspections of City facilities.

Measurable Goals:

- Develop and implement inspection procedures.
- Develop inspection checklists.

Evaluation:

- Track and schedule facility inspections.
- Report the number of inspections performed.
- Track the number of stormwater management issues of concern corrected.

7.4.3 Good Housekeeping Operations

With the numerous municipal operations performed throughout the City, it is important to ensure that the City performs all public services in a manner that protects stormwater quality. The City has identified several key areas of importance where good housekeeping measures are imperative to proper municipal operations:

Outdoor Storage

Stockpiles and used equipment are potential sources of stormwater pollution. The City of Sugar Land will evaluate its facilities to ensure that usable materials are properly stored and that potentially harmful materials are disposed of in accordance with state and federal law. The goal of this BMP is to prevent stored materials or any pollutant associated with them from reaching local waterways. This can be accomplished through a variety of means, including, but not limited to, covering stockpiles under a roof or tarp, diking storage areas to prevent runoff, or collecting the runoff and providing for its treatment.

The Public Works and Utilities Service Center and other municipal facilities currently remove and dispose of stockpiled materials that are unusable or are not intended for reuse. The City will perform quarterly and annual facility inspections to ensure that stromwater management BMPs are utilized and implemented according to staff recommendations and that potentially harmful materials are disposed of properly and in a timely manner.

Measurable Goals:

- Inventory all storage locations, and identify the types of materials utilized for municipal operations.

- Assess the adequacy of storage and measures of protection at existing storage areas.
- Recycle or properly dispose of unused, potentially harmful materials.
- Perform quarterly and annual inspections of storage facilities.

Evaluation:

- Track the number of inspections performed.
- Document the disposal volumes of unused potentially harmful materials.

Fleet and Equipment Maintenance

During the initial facility inspections, City staff will inventory all vehicle maintenance locations. Staff will assess the facility policies and procedures for the storage and containment of vehicle maintenance products and the handling and disposal of waste. The goal is to reduce the runoff of pollutants from these facilities. For instance, the wash down water from the Public Works fleet maintenance facility flows into an oil separator and is then routed to the storm sewer system. The City will evaluate the maintenance schedule of this catch basin, and any additional catch basins at City facilities, to determine if improvements or additional catch basins and oil/grit separators are needed. Used motor oil from fleet vehicles and equipment is currently recycled by a third party contractor on an as needed basis, and staff will review the facility recycling operations during the assessment of facility policies and procedures.

The City of Sugar Land will also develop and implement a training program that addresses the proper methods of storing, handling, and disposing of vehicle maintenance materials. Maintenance sites will be quarterly and annually inspected and spill responses will be documented. During the inspections, staff will also evaluate fleet operations to determine what additional measures can be taken to reduce pollutants.

Measurable Goals:

- Inventory vehicle maintenance locations.
- Assess spill prevention and protection measures for stored products.
- Evaluate the catch basin maintenance schedule and revise as needed.
- Perform quarterly and annual inspections of fleet and equipment maintenance operations.
- Develop and implement a training program to address the proper methods for storing, handling, and disposing of vehicle maintenance materials.
- Evaluate fleet operations to determine what additional measures can be taken to reduce pollutants.

Evaluation:

- Track the number of inspections performed.
- Document the number of employees trained and the hours spent on training.

Vehicle and Equipment Washing

The City of Sugar Land will evaluate the operation and maintenance procedures of the vehicle and equipment wash facility during the initial facility inspections. The Public Works and Utilities Service Center vehicle and equipment wash facility utilizes catch basins to collect the wash water and facilitate drainage into the sanitary system.

Currently, most City vehicles are washed at this facility; however, there is no policy that mandates all vehicles be washed there. The City will develop a policy requiring all City departments, excluding the Fire Department, to wash City vehicles at the Public Works facility. The Fire Department normally washes the fire trucks at the stations, and the City will evaluate the need to install catch basins at each fire station to prevent the automotive wash off from entering the storm sewer system.

Measurable Goals:

- Evaluate the need to install catch basins at City fire stations.
- Develop and implement a set of policies and procedures detailing the vehicle and equipment washing requirements necessary to protect water quality.

Evaluation:

- Document maintenance operations performed on the vehicle and equipment wash facility catch basin.
- Install catch basins at City fire stations, if deemed necessary.

Landscaping

The City of Sugar Land manages the rights-of-way (ROW) that traverse its city limits. The City does not own the property; however, the City manages the ROW in order to serve the health, safety, and transportation needs of the community. The Rights-of-way Division is responsible for the mowing of approximately 436 acres of public ROW and drainage easements throughout the City. In addition, the Parks and Recreation Department is responsible for the operation and maintenance of 13 neighborhood parks, 6 community parks, and 2 regional parks.

The City currently works with lawn maintenance contractors to minimize pollutants that flow to the storm drains. Workers are currently required to pick up any litter before mowing so that the trash doesn't get shredded and washed into the storm drain. The Parks & Recreation Department coordinates with lawn maintenance workers to ensure that no fertilizer or pesticides are put out on the day of a storm. However, this management practice is not written into City lawn maintenance contracts. The City will develop contractual agreements to require lawn maintenance contractors to follow City adopted stormwater quality BMPs. Contractors will also be encouraged to recycle green waste when possible. The City's Streetscape Master Plan utilizes organic mulch beds along major boulevards throughout the City and facilitates green waste recycling.

The City will also develop and implement a chemical application training program for all employees who handle or apply landscaping chemicals, including contracted employees. All employees will undergo training before they are allowed to apply any landscaping materials. The Texas Department of Agriculture (TDA) licenses applicators who use restricted-use and state-limited-use pesticides and regulated herbicides in several agricultural and rural-use categories. The City will ensure that contract and City employees who are responsible for the handling of pesticides and herbicides maintain proper licensing from the state.

As part of this program, the City will maintain a record of chemicals used, where they were used, and how they were applied including application rates. The goal of landscaper education is to reduce chemical and green waste runoff to natural watercourses. This is accomplished by minimizing the use of herbicides, fertilizers, and insecticides to no more than the recommended levels and by properly disposing of green waste resulting from mowing, tree trimming, weed eating, and edging.

In order to further promote stormwater management policies throughout the community, the City will evaluate the need to develop a policy to protect and preserve open space buffer areas and to establish no-mow zones to allow trees and shrubs to reclaim disturbed stream banks. The objective of this BMP is to reduce pollution and its effects by limiting maintenance operations near natural watercourses by leaving a buffer area that is natural and uncut. The BMP also involves the encouragement of tree growth to enhance natural watercourse health.

Measurable Goals:

- Develop and implement a training program on the proper use of landscaping chemicals.
- Revise contract verbiage to require lawn maintenance contractors to follow City adopted stormwater quality BMPs.
- Evaluate the need to develop a policy to protect and preserve open space buffer areas and establish no-mow zones; implement, if deemed necessary.

Evaluation:

- Track the number of individuals trained and the hours spend on training.
- Document chemical usage and application rates.

Additional municipal operations may be identified during the municipal operations survey or the facility inspections where good housekeeping procedures may be implemented to protect stormwater quality. As these operations are identified, staff will develop and implement proper policies and procedures for effective good housekeeping operations.

7.4.4 Structural Control Maintenance

With the evaluation and inspection of the stormwater management system, an inventory of existing City-managed structural controls will be established. Structural approaches to managing stormwater include physical structures that prevent, inhibit, or slow the rate at which pollutants

reach water bodies. An inspection and maintenance schedule will be established for these structural controls in order to promote their effective operation for stormwater quality treatment. This structural maintenance can reduce suspended sediment and oxygen dissolving materials in stormwater, as well as prolong the life of the system.

The Streets/Drainage Division currently cleans stormwater inlets prior to storm events in order to prevent street flooding. This maintenance is currently performed on an as needed basis and also assists in the collection of floatable debris materials. In order to properly manage the disposal of wastes removed from the MS4, the City will review current operation and maintenance (O & M) procedures and establish a set of policies and procedures for the proper disposal of wastes including dredge spoil, accumulated sediments, and floatables removed from the MS4, removed from structural controls, or collected as a result of municipal operations and maintenance activities. The City will also attempt to reduce sediment and floatable materials discharged from the MS4 by street sweeping and routinely cleaning catch basins and stormwater inlets throughout the MS4 system.

Measurable Goals:

- Develop an inventory of City-owned structural controls.
- Develop and implement an inspection and maintenance program for structural controls.
- Develop stormwater waste disposal procedures.
- Train employees on proper waste disposal procedures.

Evaluation:

- Report the number of inspections performed.
- Document the waste disposal volumes.
- Track the number of employees trained and the hours spent on training.

7.4.5 Spill Prevention and Response

The City of Sugar Land will develop and adopt spill response procedures to ensure that stormwater quality protection measures are considered during spill response activities. The City currently operates a regional hazardous material response (HAZMAT) unit with a team trained to respond to spills in a manner that protects water quality and the environment. In addition to the HAZMAT personnel, the City will provide training to applicable employees in spill response procedures and will provide spill response kits in convenient locations at City facilities where daily activities may potentially contribute to stormwater pollution. An inspection and maintenance program will be developed to ensure that the spill kits are properly maintained at each facility. In addition, the City will examine spill response procedures for field personnel in order to prevent spilled materials from entering the drainage system.

Measurable Goals:

- Examine spill response procedures to ensure proper procedures are followed to prevent spilled materials from entering the drainage system.
- Train applicable employees in spill response procedures.
- Provide spill response kits at City facilities.

Evaluation:

- Track the number of employees trained and the hours spent on training.
- Report the number of spill response kits inspected through the inspection and maintenance program.

7.4.6 Employee Training Program

The City will develop and implement an employee training program to prevent and reduce stormwater pollution from activities such as park maintenance, fleet and building maintenance, new construction, land disturbance, and stormwater system maintenance and promote good housekeeping procedures. Training programs ensure that stormwater quality programs are properly implemented and BMPs are properly installed and maintained. In addition, ensuring proper management practices can reduce the need for costly structural controls.

City staff will develop a training curriculum by incorporating the City's own stormwater management policies and procedures with educational materials obtained through the EPA, the TCEQ, and additional MS4 entities throughout the country. Stormwater quality training will be incorporated into new employee orientations, and ongoing training and review on various topics will also take place on a quarterly basis at the required monthly safety meetings. The training programs will likely consist of both classroom instruction and field exercises. Training modules may include, but are not limited to:

- Proper fueling techniques;
- Good housekeeping and material management practices;
- Spill prevention, response, and notification procedures;
- Proper waste handling procedures;
- Proper tank and drum filling and transfer procedures;
- Proper vehicle and equipment cleaning procedures;
- Proper painting, sanding, blasting, and refinishing techniques;
- Inspection procedures;
- Temporary sediment control measures; and
- Stormwater sampling techniques.

As additional O & M stormwater BMPs are identified during the quarterly and annual facility and operational inspections, additional training may be developed and performed.

Measurable Goals:

- Develop training modules.
- Provide training to municipal operations employees and their contractors, as applicable.

Evaluation:

- Track the number of individuals trained.
- Report the number of hours spent on training.

Table 7 - 1 POLLUTION PREVENTION/GOOD HOUSEKEEPING FOR MUNICIPAL OPERATIONS							
Best Management Practice	**Measurable Goals**	**Permit Year (Aug. to Aug.)**					**Key Departments/Divisions**
		1	**2**	**3**	**4**	**5**	
Street Sweeping	- Review current operations and procedures, and prioritize locations based on pollution potential.						Public Works
	- Determine whether increased street sweeping would be beneficial to the stormwater management effort.						Public Works
	- Evaluate the financial resources available to increase contracted services for street sweeping or to purchase a street sweeper.						Public Works
	- Implement program changes as needed.						Public Works
Municipal Operations and Facility Survey	- Perform a municipal operations and facility survey.						Public Works
	- Develop policies and procedures to implement stormwater BMPs as deemed necessary in the municipal operations and facility survey.						All Departments
Facility Inspection Program	- Develop and implement inspection procedures.						All Departments
	- Develop inspection checklists.						All Departments
Good Housekeeping Operations: *Outdoor Storage*	- Inventory all storage locations, and identify the types of materials utilized for municipal operations.						Public Works
	- Assess the adequacy of storage and measures of protection provided at existing storage locations.						Public Works
	- Recycle or properly dispose of unused, potentially harmful materials.						Public Works
	- Perform quarterly and annual inspections of storage facilities.						Public Works

Table 7 - 1 POLLUTION PREVENTION/GOOD HOUSEKEEPING FOR MUNICIPAL OPERATIONS							
Best Management Practice	**Measurable Goals**	**Permit Year (Aug. to Aug.)**					**Key Departments/Divisions**
		1	**2**	**3**	**4**	**5**	
Good Housekeeping Operations: *Fleet and Equipment Maintenance*	- Inventory vehicle maintenance locations.						Public Works/Fleet Services
	- Assess spill prevention and protection measures for stored products.						Public Works/Fleet Services
	- Evaluate the catch basin maintenance schedule and revise as needed.						Public Works/Fleet Services
	- Perform quarterly and annual inspections of fleet and equipment maintenance operations.						Public Works/Fleet Services
	- Develop and implement a training program to address the proper methods for storing, handling, and disposing of vehicle maintenance materials.						Public Works/Fleet Services
	- Evaluate fleet operations to determine what additional measures can be taken to reduce pollutants.						Public Works/Fleet Services
Good Housekeeping Operations: *Vehicle and Equipment Washing*	- Evaluate the need to install catch basins at City fire stations.						Public Works/Fire
	- Develop and implement policies and procedures detailing the vehicle and equipment washing requirements necessary to protect water quality.						Public Works/Fleet Services
Good Housekeeping Operations: *Landscaping*	- Develop and implement a training program on the proper use of landscaping chemicals.						Public Works/Parks
	- Revise contract verbiage to require lawn maintenance contractors to follow City adopted stormwater quality BMPs.						Public Works/Parks
	- Evaluate the need to develop a policy to protect and preserve open space buffer areas and establish no-mow zones; implement, if deemed necessary.						Public Works/Planning/Engineering
Structural Control Maintenance	- Develop an inventory of City-owned structural controls.						Public Works
	- Develop and implement an inspection and maintenance program for structural controls.						Public Works/Code Enforcement
	- Develop stormwater waste disposal procedures.						Public Works
	- Train employees on proper waste disposal procedures.						Public Works

Table 7 - 1 POLLUTION PREVENTION/GOOD HOUSEKEEPING FOR MUNICIPAL OPERATIONS							
Best Management Practice	**Measurable Goals**	**Permit Year (Aug. to Aug.)**					**Key Departments/Divisions**
		1	**2**	**3**	**4**	**5**	
Spill Prevention and Response	- Examine spill response procedures to ensure proper procedures are followed to prevent spilled materials from entering the drainage system.						Public Works/Fire
	- Train applicable employees in spill response procedures.						Public Works/Fire
	- Provide spill response kits at City facilities.						Public Works/Fire
Employee Training Program	- Develop training modules.						All Departments
	- Provide training to municipal operations employees and their contractors, as applicable.						All Departments

Begins Permit Year 1	Begins Permit Year 2	Begins Permit Year 3	Begins Permit Year 4	Begins Permit Year 5

SECTION 8 – RECORDKEEPING AND REPORTING

As detailed in TPDES General Permit TXR040000, the City must document and report the implementation of all stormwater BMPs throughout the course of the permit period, and the TCEQ will require that the City submit annual reports to document the development and implementation of the SWMP.

8.0 RECORDKEEPING

In order to properly evaluate the success of the SWMP, the City must document the development and implementation of all stormwater programs throughout the permit period, and as referenced in the TPDES general permit, the City must comply with a series of recordkeeping requirements:

- Retain all records, a copy of the TPDES general permit, and records of all data used to complete the application (NOI) for the general permit.
- Satisfy the public participation requirements, for a period of at least three years, or for the remainder of the term of this general permit, whichever is longer.
- The SWMP required by this general permit (including a copy of the general permit) must be retained at a location accessible to the TCEQ.
- Make the NOI and the SWMP available to the public if requested to do so in writing. Copies of the SWMP must be made available within 10 working days of receipt of a written request. Other records must be provided in accordance with the Texas Public Information Act.

As previously referenced, a copy of the SWMP and all annual reports will be accessible on the City's stormwater website. Individuals may also contact the City to request additional program documentation. Reference the TPDES general permit for additional information regarding recordkeeping requirements.

8.1 REPORTING

The TPDES general permit requires that the City report to the TCEQ throughout the permit period and comply with specific reporting requirements:

- ***Noncompliance Notification*** - According to 30 TAC 305.125 (9), any noncompliance which may endanger human health or safety, or the environment, must be reported by the permittee to the TCEQ.

- ***Other Information*** – When the permittee becomes aware that it either submitted incorrect information or failed to submit complete and accurate information requested in an NOI, NOT, or NOC, or any other report, it must promptly submit the facts or information to the executive director.

- ***Annual Report*** – The MS4 operator must submit a concise annual report to the executive director within 90 days of the end of each permit year. The annual report must address the previous permit year and include the following information:

    - The status of the compliance with permit conditions, an assessment of the appropriateness of the identified BMPs, progress towards achieving the statutory goal of reducing the discharge of pollutants to the MEP, the measurable goals for each of the minimum control measures, and an evaluation of the success of the implementation of the measurable goals;

    - Status of any additional control measures implemented by the permittee (if applicable);

    - Any minimum control measure activities initiated before permit issuance may be included, under the appropriate headings, as part of the first year's annual report;

    - A summary of the results of information (including monitoring data) collected and analyzed, if any, during the reporting period used to assess the success of the program at reducing the discharge of pollutants to the MEP;

    - A summary of the stormwater activities the MS4 operator plans to undertake during the next reporting cycle;

    - Proposed changes to the SWMP, including changes to any BMPs or any identified measurable goals that apply to the program elements;

    - The number of municipal construction activities authorized under this general permit and the total number of acres disturbed;

    - The number of non-municipal construction activities that occurred within the jurisdiction of the permittee (as noticed to the permittee by the construction operator);

    - Notice that the MS4 operator is relying on another government entity to satisfy some of its permit obligations (if applicable);

    - Each permittee must sign and certify the annual report in accordance with 30 TAC 305.128 (relating to Signatories to Reports); and

    - The annual report must be submitted to the following address:

        Texas Commission on Environmental Quality
        Storm Water & Pretreatment Team; MC – 148
        P.O. Box 13087
        Austin, Texas 78711-3087

SECTION 9 – REFERENCES

Improving Water Quality in Upper Oyster Creek: Two TMDLs for Bacteria and Dissolved Oxygen. September 2007. Texas Commission on Environmental Quality. 5 Sept. 2007 <http://www.tceq.state.tx.us/assets/public/implementation/water/tmdl/25oystercreek/25-oystercreek.pdf>.

Pesticide Applicator. 2006. Texas Department of Agriculture. 28 September 2007 <http://www.agr.state.tx.us/agr/program_render/0,1987,1848_5325_0_0,00.html?channelId=5325>.

Texas Pollutant Discharge Elimination System General Permit No. TXR040000, General Permit to Discharge Under the Texas Pollutant Discharge Elimination System. Texas Commission on Environmental Quality. 28 September 2007 <http://www.tceq.state.tx.us/assets/public/permitting/waterquality/attachments/stormwater/txr040000.pdf>.

Title 40, Part 122 of the Code of Federal Regulations (40 CFR 122). 26 September 2007. GPO Access. 28 September 2007 <http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=cd5a2e8a88a287e0c3e997c992a380d6&tpl=/ecfrbrowse/Title40/40cfr122_main_02.tpl>

Upper Oyster Creek: A TMDL Project for Bacteria and Dissolved Oxygen. Texas Commission on Environmental Quality. 5 September 2007 <http://www.tceq.state.tx.us/implementation/water/tmdl/25-oystercreek.html>.

APPENDIX A – DEFINITIONS AND TERMINOLOGY

I. DEFINITIONS

Best Management Practices (BMPs) - Schedules of activities, prohibitions of practices, maintenance procedures, structural controls, local ordinances, and other management practices to prevent or reduce the discharge of pollutants. BMPs also include treatment requirements, operating procedures, and practices to control runoff, spills or leaks, waste disposal, or drainage from raw material storage areas.

Classified Segment - refers to a water body that is listed and described in Appendix A or Appendix C of the Texas Surface Water Quality Standards, at 30 TAC • 307.10.

Clean Water Act (CWA) - The Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972, Pub.L. 92-500, as amended Pub. L. 95-217, Pub. L. 95-576, Pub. L. 96-483 and Pub. L. 97-117, 33 U.S.C. 1251 et.seq.

Common Plan of Development or Sale - A construction activity that is completed in separate stages, separate phases, or in combination with other construction activities. A common plan of development or sale is identified by the documentation for the construction project that identifies the scope of the project, and may include plats, blueprints, marketing plans, contracts, building permits, a public notice or hearing, zoning requests, or other similar documentation and activities.

Construction Site Operator - The person or persons associated with a small or large construction project that meets either of the following two criteria:

(a) the person or persons that have operational control over construction plans and specifications (including approval of revisions) to the extent necessary to meet the requirements and conditions of this general permit; or

(b) the person or persons that have day-to-day operational control of those activities at a construction site that are necessary to ensure compliance with a storm water pollution prevention plan for the site or other permit conditions (e.g. they are authorized to direct workers at a site to carry out activities required by the Storm Water Pollution Prevention Plan or comply with other permit conditions).

Conveyance - Curbs, gutters, man-made channels and ditches, drains, pipes, and other constructed features designed or used for flood control or to otherwise transport storm water runoff.

Daily Maximum - For the purposes of compliance with the numeric effluent limitations contained in this permit, this is the maximum concentration measured on a single day, by grab sample, within a period of one calendar year.

Discharge - When used without a qualifier, refers to the discharge of storm water runoff or certain non-storm water discharges as allowed under the authorization of this general permit.

Final Stabilization - A construction site where either of the following conditions are met:

(a) All soil disturbing activities at the site have been completed and a uniform (e.g, evenly distributed, without large bare areas) perennial vegetative cover with a density of 70% of the native background vegetative cover for the area has been established on all unpaved areas and areas not covered by permanent structures, or equivalent permanent stabilization measures (such as the use of riprap, gabions, or geotextiles) have been employed.

(b) For individual lots in a residential construction site by either:

(1) the homebuilder completing final stabilization as specified in condition (a) above; or

(2) the homebuilder establishing temporary stabilization for an individual lot prior to the time of transfer of the ownership of the home to the buyer and after informing the homeowner of the need for, and benefits of, final stabilization.

(c) For construction activities on land used for agricultural purposes (e.g. pipelines across crop or range land), final stabilization may be accomplished by returning the disturbed land to its preconstruction agricultural use. Areas disturbed that were not previously used for agricultural activities, such as buffer strips immediately adjacent to a surface water and areas which are not being returned to their preconstruction agricultural use must meet the final stabilization conditions of condition (a) above.

Ground Water Infiltration - For the purposes of this permit, groundwater that enters a municipal separate storm sewer system (including sewer service connections and foundation drains) through such means as defective pipes, pipe joints, connections, or manholes.

Illicit Connection - Any man-made conveyance connecting an illicit discharge directly to a municipal separate storm sewer.

Illicit Discharge - Any discharge to a municipal separate storm sewer that is not entirely composed of storm water, except discharges pursuant to this general permit or a separate authorization and discharges resulting from emergency fire fighting activities.

Indian Country - Defined in 18 USC Section (•) 1151, means (a) all land within the limits of any Indian reservation under the jurisdiction of the United States Government, notwithstanding the issuance of any patent, and including rights-of-way running through the reservation; (b) all dependent Indian communities within the borders of the United States whether within the original or subsequently acquired territory thereof, and whether within or without the limits of a

state, and (c) all Indian allotments, the Indian titles to which have not been extinguished, including rights-of-way running through the same. This definition includes all land held in trust for an Indian tribe.

Industrial Activities - manufacturing, processing, material storage, and waste material disposal areas (and similar areas where storm water can contact industrial pollutants related to the industrial activity) at an industrial facility described by the TPDES Multi Sector General Permit, TXR050000, or by another TCEQ or TPDES permit.

Large Construction Activity - Construction activities including clearing, grading, and excavating that result in land disturbance of equal to or greater than five (5) acres of land. Large construction activity also includes the disturbance of less than five (5) acres of total land area that is part of a larger common plan of development or sale if the larger common plan will ultimately disturb equal to or greater than five (5) acres of land. Large construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, and original purpose of a ditch, channel, or other similar storm water conveyance. Large construction activity does not include the routine grading of existing dirt roads, asphalt overlays of existing roads, the routine clearing of existing right-of-ways, and similar maintenance activities.

Maximum Extent Practicable (MEP) - The technology-based discharge standard for municipal separate storm sewer systems to reduce pollutants in storm water discharges that was established by CWA • 402(p). A discussion of MEP as it applies to small MS4s is found at 40 CFR • 122.34.

MS4 Operator – For the purpose of this permit, the public entity, and/ or the entity contracted by the public entity, responsible for management and operation of the small municipal separate storm sewer system that is subject to the terms of this general permit.

Notice of Change (NOC) - Written notification from the permittee to the executive director providing changes to information that was previously provided to the agency in a notice of intent.

Notice of Intent (NOI) - A written submission to the executive director from an applicant requesting coverage under this general permit.

Notice of Termination (NOT) - A written submission to the executive director from a permittee authorized under a general permit requesting termination of coverage under this general permit.

Outfall - For the purpose of this permit, a point source at the point where a municipal separate storm sewer discharges to waters of the United States (U.S.) and does not include open conveyances connecting two municipal separate storm sewers, or pipes, tunnels, or other conveyances that connect segments of the same stream or other waters of the U.S. and are used to convey waters of the U.S.

Permittee - The MS4 operator authorized under this general permit.

Permitting Authority - For the purposes of this general permit, the TCEQ.

Point Source - (from 40 CFR • 122.22) any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff.

Pollutant(s) of Concern - Include biochemical oxygen demand (BOD), sediment or a parameter that addresses sediment (such as total suspended solids, turbidity or siltation), pathogens, oil and grease, and any pollutant that has been identified as a cause of impairment of any water body that will receive a discharge from an MS4. (Definition from 40 CFR • 122.32(e)(3)).

Redevelopment - Alterations of a property that changed the ■footprint•

of a site or building in such a way that there is a disturbance of equal to or greater than one (1) acre of land. This term does not include such activities as exterior remodeling.

Small Construction Activity - Construction activities including clearing, grading, and excavating that result in land disturbance of equal to or greater than one (1) acre and less than five (5) acres of land. Small construction activity also includes the disturbance of less than one (1) acre of total land area that is part of a larger common plan of development or sale if the larger common plan will ultimately disturb equal to or greater than one (1) and less than five (5) acres of land. Small construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, and original purpose of a ditch, channel, or other similar storm water conveyance. Small construction activity does not include the routine grading of existing dirt roads, asphalt overlays of existing roads, the routine clearing of existing right-of-ways, and similar maintenance activities.

Small Municipal Separate Storm Sewer System (MS4) – refers to a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains): (i) Owned or operated by the United States, a state, city, town, borough, county, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under • 208 of the CWA; (ii) Designed or used for collecting or conveying storm water; (iii) Which is not a combined sewer; (iv) Which is not part of a publicly owned treatment works (POTW) as defined at 40 CFR • 122.2; and (v) Which was not previously authorized under a NPDES or TPDES individual permit as a medium or large municipal separate storm sewer system, as defined at 40 CFR §§122.26(b)(4) and (b)(7). This term includes systems similar to separate storm sewer systems at military bases, large hospital or prison complexes, and highways and other thoroughfares. This term does not include separate storm sewers in very discrete areas, such as individual buildings. For the purpose of this permit, a very discrete system also includes storm drains associated with certain municipal offices and education facilities serving a nonresidential

population, where those storm drains do not function as a system, and where the buildings are not physically interconnected to an MS4 that is also operated by that public entity.

Storm Water and Storm Water Runoff - Rainfall runoff, snow melt runoff, and surface runoff and drainage.

Storm Water Associated with Construction Activity - Storm water runoff from an area where there is either a large construction activity or a small construction activity.

Storm Water Management Program (SWMP) - A comprehensive program to manage the quality of discharges from the municipal separate storm sewer system.

Structural Control (or Practice) - A pollution prevention practice that requires the construction of a device, or the use of a device, to capture or prevent pollution in storm water runoff. Structural controls and practices may include but are not limited to: wet ponds, bioretention, infiltration basins, storm water wetlands, silt fences, earthen dikes, drainage swales, vegetative lined ditches, vegetative filter strips, sediment traps, check dams, subsurface drains, storm drain inlet protection, rock outlet protection, reinforced soil retaining systems, gabions, and temporary or permanent sediment basins.

Surface Water in the State - Lakes, bays, ponds, impounding reservoirs, springs, rivers, streams, creeks, estuaries, wetlands, marshes, inlets, canals, the Gulf of Mexico inside the territorial limits of the state (from the mean high water mark (MHWM) out 10.36 miles into the Gulf), and all other bodies of surface water, natural or artificial, inland or coastal, fresh or salt, navigable or nonnavigable, and including the beds and banks of all water-courses and bodies of surface water, that are wholly or partially inside or bordering the state or subject to the jurisdiction of the state; except that waters in treatment systems which are authorized by state or federal law, regulation, or permit, and which are created for the purpose of waste treatment are not considered to be water in the state.

Total Maximum Daily Load (TMDL) - The total amount of a substance that a water body can assimilate and still meet the Texas Surface Water Quality Standards.

Urbanized Area (UA) - An area of high population density that may include multiple MS4s as defined and used by the U.S. Census Bureau in the 2000 decennial census.

Waters of the United States - (from 40 CFR • 122.2) Waters of the United States or waters of the U.S. means:

(a) all waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;

(b) all interstate waters, including interstate wetlands;

(c) all other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds that the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:

(1) which are or could be used by interstate or foreign travelers for recreational or other purposes;

(2) from which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or

(3) which are used or could be used for industrial purposes by industries in interstate commerce;

(d) all impoundments of waters otherwise defined as waters of the United States under this definition;

(e) tributaries of waters identified in paragraphs (a) through (d) of this definition;

(f) the territorial sea; and

(g) wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) through (f) of this definition.

Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR • 423.11(m) which also meet the criteria of this definition) are not waters of the United States. This exclusion applies only to manmade bodies of water which neither were originally created in waters of the United States (such as disposal area in wetlands) nor resulted from the impoundment of waters of the United States. Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area•s status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA.

II. COMMONLY USED ACRONYMS

BMP	Best Management Practice
CFR	Code of Federal Regulations
CGP	Construction General Permit, TXR150000
CWA	Clean Water Act
DMR	Discharge Monitoring Report
EPA	Environmental Protection Agency
FR	Federal Register
IP	Implementation Procedures
MCM	Minimum Control Measure
MSGP	Multi-Sector General Permit, TXR050000
MS4	Municipal Separate Storm Sewer System
NOC	Notice of Change
NOD	Notice of Deficiency
NOI	Notice of Intent
NOT	Notice of Termination (to terminate coverage under a general permit)
NPDES	National Pollutant Discharge Elimination System
SWMP	Storm Water Management Program
SWP3, SWPPP	Storm Water Pollution Prevention Plan
TAC	Texas Administrative Code
TCEQ	Texas Commission on Environmental Quality
TPDES	Texas Pollutant Discharge Elimination System
TWC	Texas Water Code

FIGURE 1: SUMMARY OF MUNICIPAL OPERATIONS

I. Municipal Facilities

- Sugar Land City Hall
- Sugar Land Regional Airport
- Sugar Land Police Department
- Sugar Land Municipal Court
- Sugar Land Fire Administration
- Sugar Land Fire Stations No. 1 through 6
- Sugar Land Parks and Recreation
- Sugar Land Community/Neighborhood Parks and Facilities
- Sugar Land Public Works and Utilities Service Center
- Sugar Land Regional Wastewater Treatment Plant
- Sugar Land South Wastewater Treatment Plant

II. Municipal Operations/Departments

- Engineering
- Code Enforcement
- Inspections
- Planning
- Permitting
- Capital Projects/Contract Services
- Streets and Drainage
- Rights-of-way
- Water/Wastewater Utilities
- Facilities Management
- Fleet Services